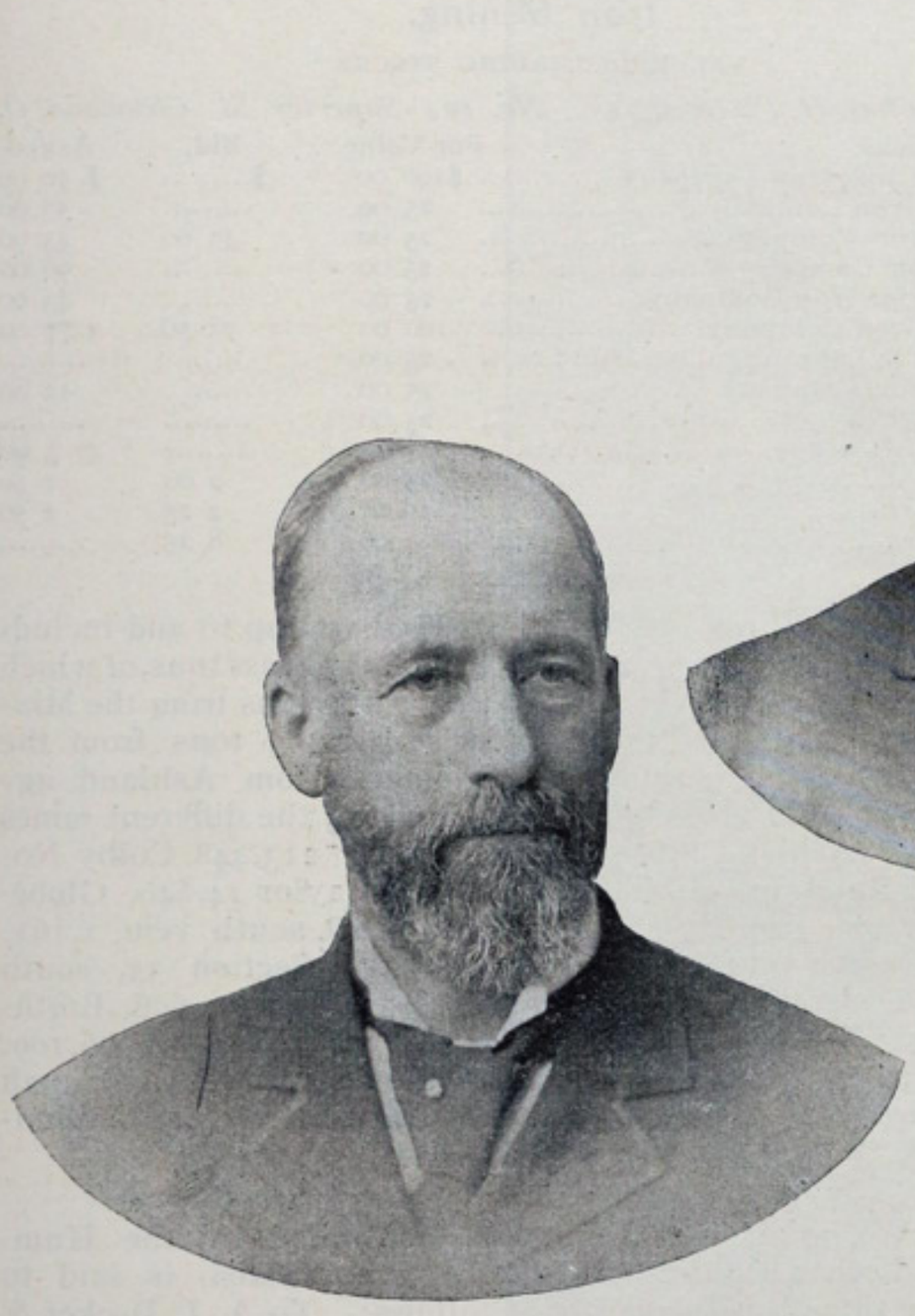
MARINE REVIEW.

VOL. VI. CLEVELAND, OHIO, THURSDAY, SEPTEMBER 8, 1892. No. 10.

Ore Shipments and Lake Freight Matters.

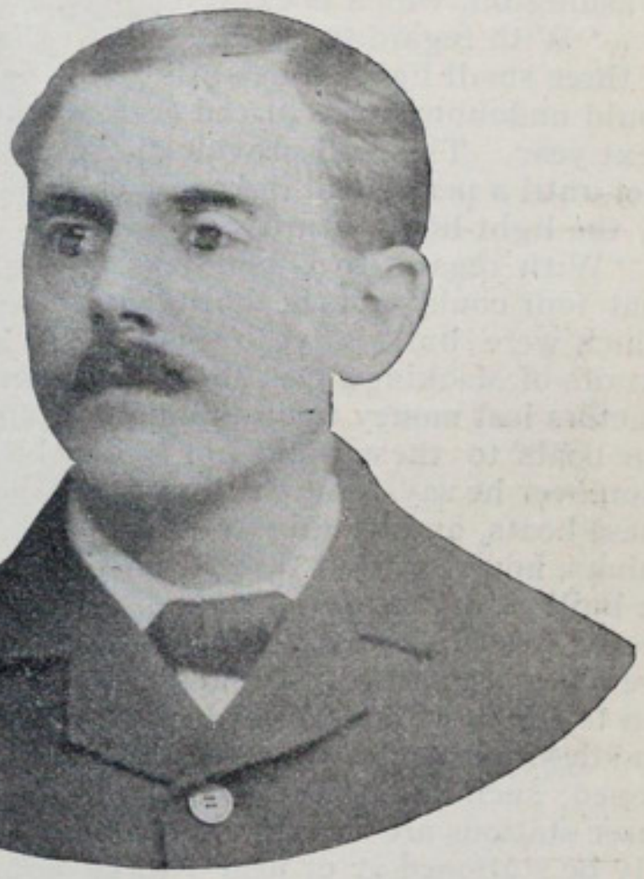
Shipments of iron ore from all upper lake ports to Sept. 1 were 5,491,625. This total is made up of exact figures from all ports excepting Escanaba, the movement from that port during August being estimated at 550,000 tons. On August 1 the entire movement, secured through reports from all dock managers, was 4,085,577 gross tons. By adding to this 856,048 gross tons shipped from Ashland, Two Harbors and Marquette during August we get a total of 4,941,625 tons, which with the additional estimate of 550,000 tons moved from Escanaba during the month brings the grand total to 5,491,625 tons. It is more than probable now that there will be close to 8,000,000 gross tons of ore shipped this year, against 7,011,933 tons in 1891, and 9,003,701 tons in 1890. A feature of the August shipments is the fact that the combined movement from Ashland, Two Harbors and Marquette during the month was 27,639 gross tons in excess of the July movement.

During a waiting spell in the lake freight market, in advance of the period when fall grain shipments from the head of Lake Superior are expected, the ore producers have taken advantage of low freight rates, and have moved more ore than was expected during August. This has resulted in a steady lake freight market at moderate rates, and not until the past few days has there been any indication of a change. The Escanaba and Marquette rates are still unchanged at 70 and 90 cents respectively, but an advance of 5 cents, or a rate of $1.05, has been paid on a few cargoes from Ashland. There is also a little improvement in the Chicago grain market, but in either case this firmness is as yet only temporary, as the outcome in fall rates depends entirely upon the extent of the late grain movement, which is hardly expected until after the 15th of the present month.



CAPT. ALBERT MYERS.

CAPT. P. G. MINCH.



ENGINEER W. H. SEAMAN.

ACTIVE MEN OF THE LAKES LOST WITH THE WESTERN RESERVE.

Clearly an Act of Injustice.

In the final act on Monday last removing Col. William Ludlow, United States engineer corps, and Commander Heyerman, U. S. N., from light-house service, the light-house board has deprived the shipping interests of the lakes of two most efficient officers with no good cause assigned for its action. The only impression left among lake vessel owners, who have made a thorough investigation of the entire question involved in the Sault river lighting matter, is that certain members of the board, on account of personal animosity toward one if not both of the district officers, grasped an opportunity to prefer charges of insubordination at a meeting of the board hastily called, with the result that a reinstatement would place the heads of the service in a very embarassing position. Such an impression left with the vessel owners and others engaged in lake commerce will certainly not result beneficially to the light-house institution, which has just enough politics about it to be looked upon unfavorably on general principles by any body of business men.

Although the board refused to do the district officers justice, it was forced to adopt their recommendations, as is shown by the latest order providing for the lighting of the additional range at the foot of Sugar island, making forty lights in all. Commander Heyerman goes to Newport, R. I.

Lake Carriers' Association.

M. A. BRADLEY, President.

VICE-PRESIDENTS: James W. Millen, Detroit, Mich. — John G. Keith, Chicago, Ill.; Frank J. Firth, Erie, Pa. — W. S. Brainard, Toledo, O.; Thomas Wilson, Cleveland, O. — R. P. Fitzgerald, Milwaukee, Wis.; Peter F. Miller, Buffalo, N.Y. — Alex. McDougall, Duluth, Minn.

Charles H. Keep, Secretary, Buffalo, N.Y. Geo. P. McKay, Treasurer, Cleveland, O.
Harvey D. Goulder, Counsel, Cleveland, O.

At a meeting of the association a short time ago, Secretary Keep was instructed to visit Washington and express to the officers of the light-house board the desire of the lake carriers relative to certain aids to navigation, for which appropriations were made in the last sundry civil appropriation bill. Mr. Keep makes the following official report of his visit to Washington to President M. A. Bradley of Cleveland:

"I had a very satisfactory interview with the light-house board. Commander Coffin was out of the city, but Admiral Greer, chairman of the board, and Capt. Mahan, engineer secretary, were present. With regard to placing the government lights at the Lime-Kilns, I was told that the matter would be taken up very promptly. Commander Woodward of Buffalo will have charge of the matter. He has been away from Buffalo but I have written him fully and will see him as soon as he returns. I have no doubt he will make an effort to buy the floating lights from Duff & Gatfield, and secure their services in looking after them. Capt. Mahan stated that in his opinion the board would have no hesitation in reimbursing the Lake Carriers' Association to the extent of the money expended by them in maintaining these floating lights, since the date of the passage of the sundry civil bill. This matter comes under Commander Coffin's special charge, but Capt. Mahan said that he would take it up with him immediately upon his return to Washington, which is expected on the 31st inst.

"With regard to Ballard's reef, Capt. Mahan said that one of three small light-ships authorized by the sundry civil bill could undoubtedly be placed there at the opening of navigation next year. This will provide the necessary light on Ballard's reef until a permanent light on a caisson is built as recommended by the light-house board.

"With regard to Green bay light-ships, Capt. Mahan said that four could not be built with $60,000. The three ships which were built a year and a half ago for service near the Straits of Mackinaw cost the government $15,000, and the contractors lost money upon them, and Capt. Mahan says that similar boats to these could not again be built for $15,000 each. Moreover he says that the lighthouse board is not satisfied with these boats, and would not duplicate them on any account. He thinks, however, that three light-ships of suitable character can be built with the $60,000, and says they can undoubtedly be placed where the Lake Carriers' Association decides that they are most necessary. He suggests that a careful letter be written to the light-house board, urging the building of three ships, and describing with care the location where they should be stationed; such letter to be accompanied by a chart upon which the three stations are suitably indicated. One vessel must necessarily be stationed at or near Eleven-Foot shoal, but the board is at perfect liberty to place the other two at whatever point they are most needed, whether in Green bay or near one of the dangerous reefs in the vicinity of Mackinaw or elsewhere. I suggest that the matter of recommending the stations for these light-ships be turned over to a small committee of experts. Capt. McKay would of course be a member of such small committee and doubtless its chairman, but I think the matter had better be very carefully considered. Such committee ought to consult with Capt. Reed and Commander Ludlow, the inspectors of the ninth and eleventh light-house districts, and ought to endeavor to secure their approval of the committee's plan before sending the committee's report to the light-house board. This last suggestion was made by Admiral Greer, who says it would save much time and many possible complications. We don't want to recommend to the board stationing the light-ship at some point and then have the board refer the matter to the inspector, and the inspector report dead against our recommendation. In such a case the board would have to follow its officers' report, although they seem very anxious to meet our wishes so far as possible."

ACTION RELATIVE TO THE WESTERN RESERVE DISASTER.

A special meeting of Cleveland members of the association was held on Monday last, to take action on the death of Capt. P. G. Minch and others lost in the Western Reserve accident. The meeting was largely attended and several of the older vessel owners spoke feelingly of the high regard held for Capt. Minch and the officers of the vessel. Capt. Thomas Wilson, Capt. J. H. Palmer and Mr. Harvey D. Goulder submitted appropriate resolutions which were adopted by the association.

Record of Speed and Big Cargoes.

[*Masters or owners are invited to report improvements on this list.*]

Iron ore: Maritana, Minnesota Steamship Company of Cleveland 4,260 gross, or 4,771 net tons, Escanaba to South Chicago; Maryland, Inter-Ocean Transportation Company of Milwaukee, 3,663 gross, or 4,103 net tons, Escanaba to South Chicago, draft 17 feet 4 inches; Western Reserve, Peter Minch of Cleveland, 3,314 gross, or 3,717 net tons, Escanaba to Ashtabula.

Grain: E. C. Pope, Eddy Bros. of Bay City, 125,730 bushels of corn, Chicago to Buffalo, draft 14 feet 8 inches; Western Reserve, Peter Minch of Cleveland, 112,431 bushels of wheat, Chicago to Buffalo; W. H. Gilcher, J. C. Gilchrist of Cleveland, 114,982 bushels of corn, Chicago to Buffalo.

Speed: Owego, Union Line of Buffalo, Buffalo to Chicago, 889 miles, 54 hours and 16 minutes, 16.4 miles an hour; Saranac, Lehigh Valley Line of Buffalo, Buffalo to Lime-Kilns, 240 miles, 15 hours and 10 minutes, 16 miles an hour.

Iron Mining.

VALUE OF LEADING STOCKS.

Quoted by Chas. H. Potter & Co., No. 104 Superior St. Cleveland, O.

Stocks.	Par Value.	Bid.	Asked.
Cleveland-Cliffs Iron Company	$100 00	$.....	$ 70 00
Champion Iron Company	25 00	.....	58 00
Chandler Iron Company	25 00	43 00	45 00
Jackson Iron Company	25 00	.....	90 00
Lake Superior Iron Company	25 00	.....	43 00
Minnesota Iron Company	100 00	73 50	77 00
Pittsburgh & Lake Angeline Iron Co.	25 00	.....	.....
Republic Iron Company	25 00	.....	12 00
Ashland	25 00	.....	.....
Section Thirty-three	25 00	.....	5 00
Brotherton	25 00	2 00	2 50
Iron Belt	25 00	2 25	2 50
Aurora	25 00	8 25	.....

Shipments of iron ore from Two Harbors up to and including Wednesday, August 31, aggregated 778,597 gross tons, of which 446,118 tons were from the Chandler, 327,101 tons from the Minnesota, 2,525 tons from the Pioneer and 2,853 tons from the Zenith mine. On the same date shipments from Ashland aggregated 1,505,187 gross tons, divided among the different mines as follows: Ashland 146,131 tons, Aurora 213,448 Colby No. 2, 42,921, Rand 17,049, Tilden 160,872, Taylor 14,640, Globe Ashland 5,309, Iron Belt 108,822, Montreal, south vein, 1,161, Montreal, north vein, 22,961, Palms 39,459, Section 33, south vein, 2,362, Section 33, north vein, 3,133, Anvil 1,696, Brotherton 74,417, Comet 25,049, Carey 22,324, Newport 76,109, Imperial 3,451, Norrie 293,523, East Norrie 138,204, Odanah 2,249, Pabst 36,658, Eureka 5,084, Sunday Lake 40,116, Windsor 18,938.

The Wyoming Iron Company, controlled by the Humphreys and other leading fee owners of the Mesaba, is said to have made three leases recently as follows: To A. J. Decker & Co., eight forties at $40,000 and royalty of 30 cents a ton, lessees to mine a minimum of 25,000 tons annually; to John T. Jones, one forty at a royalty of 50 cents a ton, lessee to mine a mimum of 25,000 tons annually and mine to be worked at full capacity while capable of paying lessor a profit of 25 cents a ton net; to Parkersburg Iron Company, three forties at a royalty of 50 cents a ton and bonus of $30,000, lessees to mine a minimum of 50,000 tons annually.

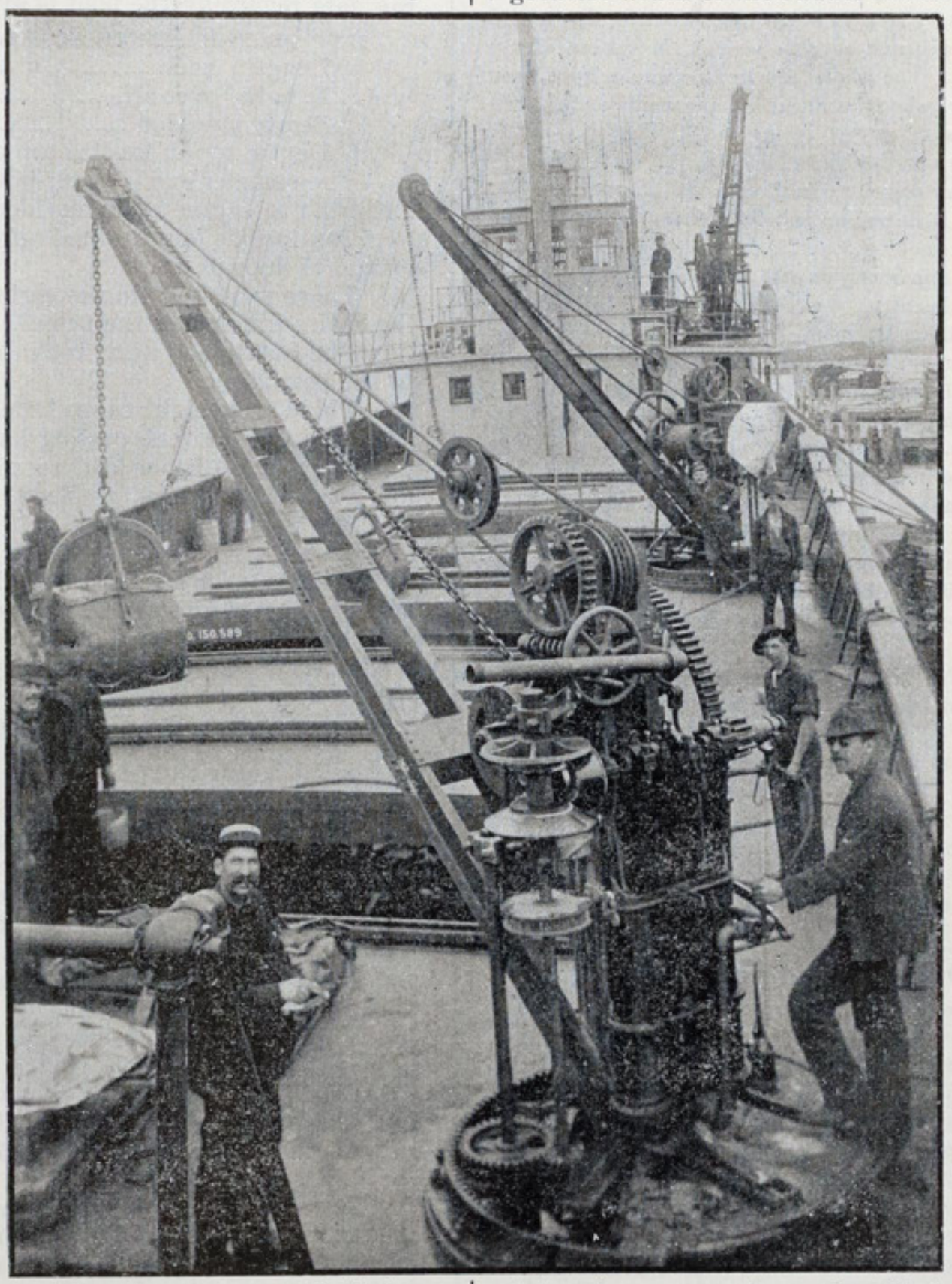
Here are the minimum outputs of Mesaba range mines for next year, as reported by one of the mining papers, and said to be covered by leases: Biwabik, 300,000 tons; Hale, 50,000; Cincinnati, 150,000; Virginia, 50,000; Duluth, 100,000; Mesaba Mountain, 400,000; Ohio, 150,000; Weimer, 50,000; New England, 50,000; Lone Jack, 50,000; Wyoming, 50,000; total, 1,450,000.

N. D. Moore is reported to have paid to A. E. Humphreys, John McKinley and others, representing the New England Iron Company, $50,000 cash, as advanced royalty on a lease covering twenty forties on the Mesaba, from which the minimum production is to be 150,000 tons per annum.

Deck Cranes for Cargo Handling.

The illustration of this page represents the deck of the new steel steamer Pioneer, built by the Detroit Dry Dock Company for the Cleveland-Cliffs company to carry pig iron from Marquette to Cleveland Before this, very primitive methods were used in unloading pig iron from the small vessels in which it was carried. With the new steamer came the the necessity for improved means of handling the pigs. These were furnished in the cranes built by the Detroit Foundry Equipment Company and described below.

There are three of these cranes, as shown in the engraving one on the bridge forward, one amidships and one near the stern. The cranes are built of steel channels and have a boom 21 feet 6 inches long, which gives an effective radius of about 18 feet. This radius is variable and is changed by means of topping gear. The cranes have three movements, one hoisting, one swinging and one topping. The hoisting and swinging movements are operated by one pair of 6 by 8 inch hoisting engines, the back and forward movements to the swinging gear being accomplished by means of bevel frictions. The hoisting speed is about 100 feet per minute. The topping gear is operated by hand, as this movement is not of very frequent occurrence and can be very easily accomplished without the load. The posts of the crane extend about 8 feet 6 inches above deck and the bottom pivot is held in place by a strong casting which is secured by steel beams about six feet above the bottom of the hold. The gearings used are all cut gears, and the cranes throughout are constructed in a thoroughly substantial manner. Although they have been in use only a few weeks and have been operated by new hands they have all given satisfaction. The drum was made sufficiently large to permit the pigs of iron being taken from the bottom of the hold and hoisted up over the side of boat. As the cranes are made to swing in a complete circle they can be operated for both the hatches.



Rudders of Chicago River Tugs.

Several Chicago river tugs have rudders as large as those on the largest lake steamers, two of them being over 7 by 12 feet. Rudders of the size usually found on tugs would be of no use whatever in the short sharp turns of the Chicago river, on which are the most expert tug men on the lakes. The shape is also very different from the usal style of rudders. It is almost square, instead of being narrow at the water line and broad at the bottom. The secret of the power in the rudders of the steamers lies in the fact that the propeller wheel forces the water past the rudder much faster than it passes the side of the boat. This is seen by noticing the stern of the propeller. Another feature is also noticeable—the water forced back rises to the surface within a short distance of the stern. For this reason the greatest width of the rudder should be at the water line and if it is to be narrowed anywhere it should be at the bottom. In fact, the present rudder in most common use now could be turned upside down to advantage. The blades of the rudders on the Chicago tugs are somewhat like the blade of a knife, the part in front of the stock being quite sharp, increasing to 8 inches at the stock and 12 inches at the rear of the blade. Increasing the size of the rudders made it necessary to strengthen the stock. This was done by casing it with iron pipe, but this is coming into general use among lake ship builders. Of course, these immense rudders are not manipulated with hand gear, but are controlled by a hydraulic gear, which will be described in another issue.

Dock property in Buffalo secured by the new Buffalo-Cleveland passenger and freight line has 240 feet river frontage, with Illinois street at one end, Mississippi at the other and Ohio street in the rear. Desirable river front property is now largely taken up in in Buffalo and the management of the new line is very well pleased with its success in getting this dock.

CHICAGO LAKE INTERESTS.

WESTERN OFFICE, MARINE REVIEW,
No. 13 Western Union Building, CHICAGO, Ill., Sept. 8.

A curious coincidence in a newspaper way arose over the dispatches announcing the loss of the Sibley yacht Wahpiti and of the Western Reserve. The drunken half-breed cook who telegraphed his friends from Collingwood that the Wahpiti had been lost, and the telegram which Harry Stewart sent to his friends at Algonac from Newberry, are identically the same. The one was a canard and the other was—the readers of the REVIEW know too well its truthfulness. Marine men who are inclined to be hypocritical about newspapers can here see the difficulties in the way of a newspaper man who receives within an hour or two before going to press news of a wreck. To all outward indications the Collingwood dispatch had the better chance of being true. It was something new. The Harry Stewart telegram, on the other hand, looked very like the cheap repetition of a canard. There was absolutely no way of finding out before the time of going to press the truthfulness or falsity of either message. Newspapers had to print them, or run the risk of not having important news. Had ninety-nine vessel captains been placed in the same position as were newspaper men in these two instances, they would have printed the Collingwood dispatch as genuine and thrown out Harry Stewart's telegram as ridiculous. The whole ninety-nine would have been looking for new jobs the next day, when the morning papers contained the full story of the Western Reserve loss

A race of steam yachts is down on the books for Sept. 17. If it comes off it will be the biggest thing on water anywhere in these parts this season.

After making an ineffectual fight before Judge Gresham to restrain the city from prosecuting the tugs for smoking, Capt. Dunham has decided that he will try burning hard coal, and apparently do not know what they will do. One thing is certain. Public sentiment has decreed that tugs in Chicago river must stop smoking. Captain William Harman, of the Chicago towing Company is said to have invented a smoke preventing device, which will permit the tugs to burn soft coal and still escape fine. It is also said that the device is not injurious to boilers. If Capt. Harman can make a success of this he has a small fortune in the patent. Not only will there be a sale for it to all the tug companies, but it will be in demand on hundreds of locomotives as well. It seems strange that some way to stop smoke on tugs had not been found long before this. Soft coal is certainly much better adapted to general use and difficult towing than is hard coal, and any device that is practicable will secure instantaneous recognition. But the time has come when smoke preventers must prevent smoke on the river, and the burden of proof rests with the inventor.

W. I. Babcock, manager of tha Chicago Shipbuilding Company, says that he is figuring on two or three new boats, but the details have not yet been closed.

It would seem that the time has come for a thorough investigation into the life saving service at Manistee. The loss of the Hattie Estelle at that port last fall showed incompetent service by the life-savers if nothing else. The statement of the watch who saw the City of Toledo headed for the shore in a tremendous sea and did not think there was anything wrong proves inexcusable stupidity. In demanding an official investigation the Chicago Seamen's Union has done a good act.

Tolls to Come Out of Elevating Charges.

Special Correspondence to the MARINE REVIEW.

KINGSTON, Ont., Sept. 8.—The details of the scheme to which reference was made last week, and by means of which vessels passing through the Sault canal for Canadian ports will be relieved of the new United States toll, has been made known. It has been decided that the amount of the tolls shall be deducted out of the elevating charges for the remainder of the season. The tolls are very near equal to the rates for elevating, therefore in reality the elevating will be done free. This scheme might be said to be confined to the Montreal Transportation Company alone, as nearly all grain coming to this port from Lake Superior is consigned to it. Another fact is that nearly all this grain is owned as well as carried by the Montreal company, and therefore the loss will not be so much as it would otherwise be. This settles the canal tolls matter for this year at least.

The steamer Columbian is still unmoved in the Cedar rapids, and is likely to remain there for some time. One of the cribs, while being sunk near her, broke away and went whirling down the rapids. As it did not go to pieces it will be towed back and another attempt made to sink it.

Official Numbers and Tonnage.

The bureau of navigation, E. C. O'Brien commissioner, assigned official numbers to and passed upon the tonnage of the following lake vessels during the week ending Sept. 3: Steam—Arabel, Marquette, Mich., built at Manitowoc, Wis., 47.96 tons gross, 34.65 net, No. 106,962; Florence B., Detroit; built at Detroit, 24.87 gross tons, 20.15 net, No. 120,915; Iudra, Buffalo, built at Buffalo, 9.99 tons gross, 7.42 net, No. 100,545; Morning Star, Marquette, Mich., built at Meaford, Ont., 9.64 tons gross, 6.54 net, No. 92,463; Outing, Ogdensburg, N. Y., built at Ogdensburg, 15.87 tons gross, 7.84 net, No. 155,-233; W. N. Peckham, Ruffalo, built at Buffalo, 17.63 tons gross, 8.82 net, No. 81,398.

The Western Reserve—Her Construction.

No one acquainted with the advantages of metal ships will claim that the loss of the Western Reserve will cause a halt in the building of this type of vessel, but the accident will direct attention immediately to the general practice on the lakes, and the builders of the lost steamer are very prompt in coming forward with all detail on this point. There is presented here very full extracts from the specifications, and a drawing showing a half midships section of the boat. After examining a copy of the specifications, Mr. Frank E. Kirby of tbe Detroit Dry Dock Company says: "Have looked over specifications of the ship. They provide ample material, in fact superior to most ships." W. I. Babcock, general manager of the Chicago Ship Building Company, says in concluding a letter to the builders bearing upon the accident: "That any blame attaches to your company or the ship, however, is absurd." Further opinions in detail from experts are expected later, and in the meantime the following data regarding the boat is given:

LIST OF THE PRINCIPAL SCANTLINGS AND DIMENSIONS.

Length, keel.....300 feet.
Length, over all.....318 "
Beam, moulded .....41 "
Depth, top of keel to top of spar deck.....25 "

The steamer had a water-bottom extending from collision bulkhead to engine room, divided into six compartments.

Continuous longitudinal girders supporting tank top, laid on top of floor plates.

There were belt frames eight frame spaces apart throughout the entire framing of the vessel.

The bulkheads were five in number, two of which extended to the spar deck.

There were eight cargo hatches and two trimming hatches in each deck, and one coaling hatch.

Plate keel—Inner keel 10-16″ x 26″; outer keel 11-16″x 36″.

Stem, forged iron, 2½″ x 8½″.

Sternpost, forged iron, 3½″ x 10″ above and 4″ x 10″ below the hub.

Frames, 3″ x 4½″ x 9 lbs., doubled at bulkheads. Intermediate frames forward of collision bulkhead extending to main deck.

Reverse frames, 3″ x 3″ x 7.5 lbs., on alternate frames to spar deck and main deck.

Floor plates, 19″ x 6-16″, top straight and parallel to dead rise, connected to center keelson by double vertical angles 3½″ x 3½″ x 8.5 lbs.

Futtock plates at bilges 5-16″ thick.

Center keelson—Plates 42″ x 7-16″, double angles 4″ x 4″ x 10 lbs. at bottom, and 3″ x 3″ x 7.5 lbs. at top.

Longitudinal girders—Three on each side of center keelson; plates 6-16″ and angles 2½″ x 2½″ x 5.5 lbs., one for each frame.

Tank top—The center strake to be 6-16″ x 54″, margin plates 5-16″ thick, balance 4-16″ thick.

4″ x 9 lbs. Z bar carlings on top of water bottom, in one piece from bilge to bilge, 4 feet apart.

Plating—Below the 16-foot water line plates are continued full thickness to ends. Garboards 10-16″, bottom 9-16″, bilges 10-16″, sides 9-16″, top sides 7-16″, spar deck sheer strake 11-16″ x 42″.

Deck beams—Main deck beams 10″ x 26⅔ lbs. T bulb on alternate frames. Spar deck beams 6″ x 3″ x 15.3 lbs., bulb angles at hatches and balance 3″ x 2½″ x 10 lbs. bulb angles. Spar deck beams on every frame.

Deck stringers —Main deck stringers 42″ x 7-16″, with a sperketting plate 12″ x 6-16″; spar deck stringer 58″ x 10-16″, connected to sheer strake with 3½″ x 6″ x 12 lbs. steel angles.

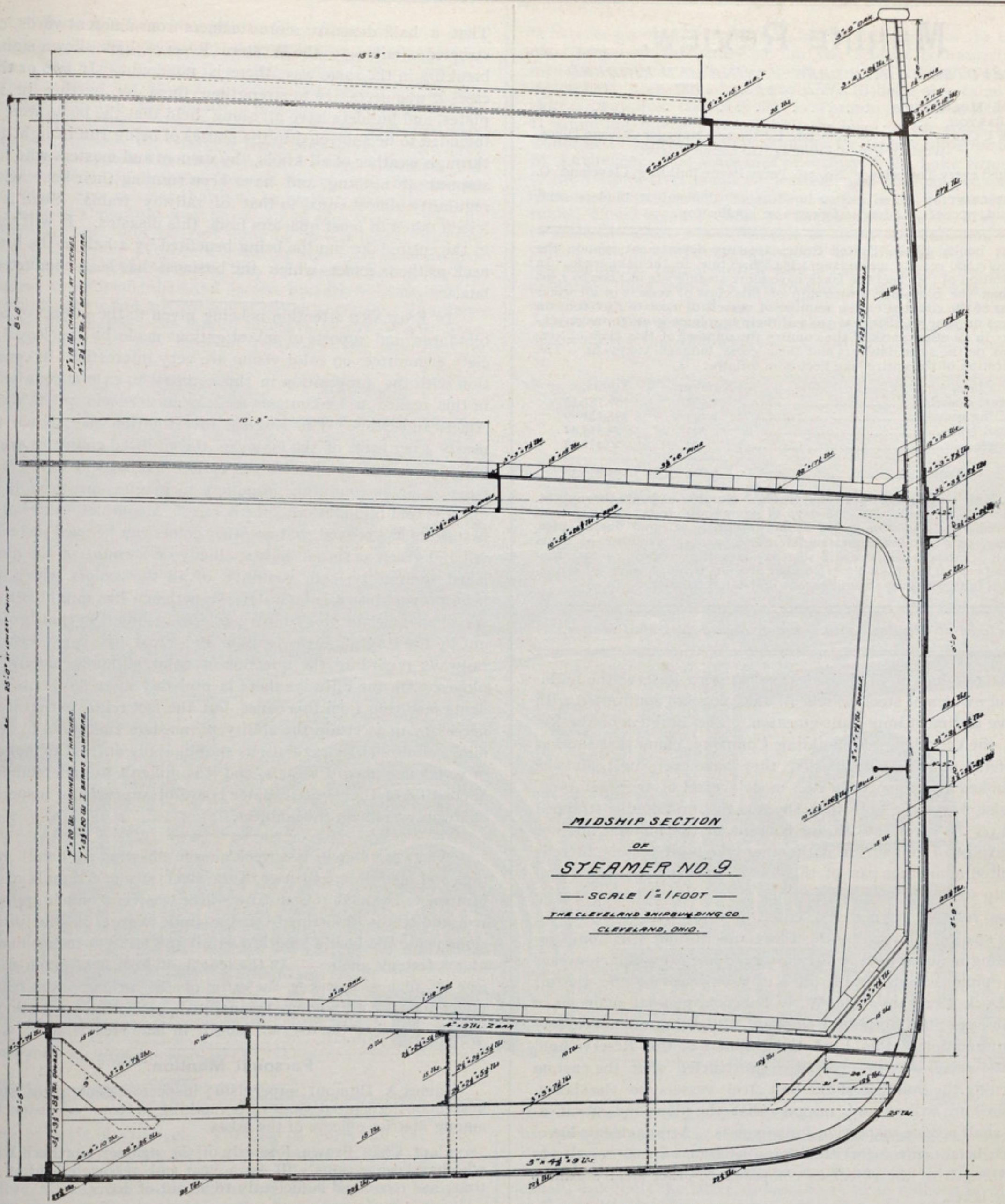
Stanchions—Hold stanchions 7″ x 20 lbs. I beams, one on every beam in center of boat; between deck stanchions 4″ x 10 lb. I beams; 7″ x 20 lb. I beams at hatches.

Steel decks—Main deck forward of collision bulkhead 6-16″ inside of stringers; aft on the same deck is a 6-16″ steel deck extending from the stuffing-box bulkhead aft; spar deck, 6-16″ steel deck forward of collision bulkhead; balance of deck 5-16″ thick.

Bulkhead plates 6-16″ thick, supported by horizontal and vertical angles, 3″ x 4½″ x 9 lbs., calked water tight. Cargo bulkheads 5-16″ plates.

Belt frames 6-16″, 12″ deep at spar deck, 20″ at main deck and 24″ at tank top.

Hold stringers 10″ x 26⅔ lbs. continuous T bulb. Additional stringers at ends 3½″ x 6″ x 12 lbs., back to back.



HALF MIDSHIPS SECTION, STEAMER WESTERN RESERVE.

Breast hooks, 7-16″ plates.

Hull plating—All seams to be double riveted; butts to have single straps double riveted, except the sheer strake which will have double straps treble riveted, and the bilge strake single straps treble riveted.

Main deck stringer—Single butt straps double riveted.

Spar deck stringer—Double butt straps treble riveted.

Tank top—Margin plates and center strake with single straps, double riveted.

RULES GOVERNING TESTS OF MATERIALS.

Following are the Lloyd's rules adhered to by the Cleveland Rolling Mill Company in testing material for the vessel:

Rule 10. Strips cut lengthwise or crosswise of the plate, and also angle and bulb steel, to have an ultimate tensile strength of not less than 28, and not exceeding 32 (long) tons per square inch of section, with an elongation equal to at least 16 per cent. on a length of 8 inches before fracture.

Rule 11. Steel angles intended for the framing of vessels, and bulb steel for beams may have a maximum tensile strength of 33 tons per square inch of section, provided they be capable of standing the bending tests, and of being efficiently welded.

Rule 12. Strips cut from the plate angle, or bulb steel, to be heated to a low cherry red and cooled in water of 82 deg. Fahrenheit, must stand bending double round a curve of which the diameter is not more than three times the thickness of the plates tested.

Rule 13. In addition to this, samples of plates and bars should be subjected to cold bending tests at the discretion of surveyors.

MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

JOHN M. MULROONEY, ... } PROPRIETORS.
F. M. BARTON, ... }
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The books of the United States treasury department contain the names of 3,600 vessels, measuring 1,154,870.38 tons in the lake trade. In classification of this fleet the lakes have more steamboats of 1,000 to 2,500 tons than the combined ownership of this class of vessels in all other sections of the country. The number of vessels of 1,000 to 2,500 tons on the lakes on June 30, 1891, was 310 and their aggregate gross tonnage 512,787.58; in all other parts of the country the number of this class of vessels was, on the same date, 213 and their gross tonnage 319,750.84. The classification of the entire lake fleet is as follows:

Class.	Number.	Tonnage.
Steam vessels	1,592	756,751.53
Sailing vessels	1,243	325,131.06
Canal boats	703	72,515 42
Barges	62	20,472.37
Total	3,600	1,154,870.38

St. Mary's Falls and Suez canal traffic: Number of boats through St. Mary's Falls canal in 1890, 228 days of navigation, 10,557; tonnage, net registered, 8,454,435. Number of boats through Suez canal during 1890, full year, 3,389; tonnage, net registered, 6,890,014. Number of boats through St. Mary's Falls canal in 1891, 225 days of navigation, 10,191; tonnage, net registered, 8,400,685. Number of boats through Suez canal during 1891, full year, 4,207; tonnage, net registered, 8,698,777.

Entered at Cleveland Post Office as Second-class Mail Matter.

IN THE loss of the late steamer Western Reserve the builders and owners of steel vessels on the lakes are confronted with a grave and most important question. The builders of the Reserve, the Cleveland Shipbuilding Company, claim that she was one of the strongest boats that they have ever built, and she was looked upon generally as a model vessel of the steel type. It is also worthy of note that she was the first double strapped vessel on the lakes. With the consent of the builders and for the purpose of comparison with other lake-built vessels, there is presented in another part of this issue a drawing showing a half midship section of the steamer, and also full detail from specifications relative to material entering into her construction. Lloyd's rules, followed by the Cleveland Rolling Mill Company in testing material used in the vessel are also presented, together with opinions from Frank E. Kirby, engineer of the Detroit Dry Dock Company, and W. J. Babcock, general manager of the Chicago Ship Building Company. In giving out very freely all information of this kind the builders of the Reserve hold that the vessel was in every way constructed after the custom governing the building of the best steel vessels on the lakes, and they are willing and anxious that the plans and specifications shall receive inspection from experts. Arrangements have, in fact, been made for written opinions from experts relative to the strength of the vessel as compared to other steel steamers on the lakes.

In the meantime the statement of the only survivor from the lost vessel, Wheelman H. W. Stewart, that the vessel broke in two at the forward hatch while being driven into heavy head seas, with no water in her forward compartments, is generally accepted. It is the opinion, however, of several conservative authorities that the boat came down on a floating log or some similar object. It is a lesson as costly as can well be imagined, but it will not result to the disadvantage of the steel ship building industry, even on the lakes. Already orders have gone out from the owners of some of the competing lines of steel boats to stop the practice, which had been carried to extremes, of forcing big, high powered vessels into weather of all kinds on the upper lakes, with no cargo and little water ballast for their protection. That a half dozen or more steamers from different yards, constructed similar to the Western Reserve, have shown signs of breaking in the same way, there is no doubt. In two or three cases it was necessary to strengthen them by putting in new plates, and builders have all along held that the boats were not intended to be subjected to the abuses of being run in light trim through weather of all kinds, by owners and masters who have stopped at nothing, and have been running their boats with a regularity almost equal to that of railway trains. Such is the lesson taken in most quarters from this disaster. It will result in the entire lake marine being benefited by a halt in the break-neck methods under which the business has been conducted of late.

IN ENGLAND attention is being given to the subject of color blindness, and reports of investigations made by the Royal Society committee on color vision are very interesting, in connection with the proposition in this country to extend regulations in this regard to lookouts as well as masters and pilots aboard American vessels. The English investigation has shown that nearly 4 per cent. of the males in the civilized countries are deficient in acuteness of color perception. Blindness to red is the most common condition; blindness to green comes next in frequency, and blindness to blue is rare. A complete series of experiments has proved that no other colors can be used instead of red and green as signal lights, chiefly on account of the diminished luminosity and visibility of all the colors which have been proposed as a substitute. Experience has taught all railway companies in this country a lesson similar to that brought out by the English investigation, and great care is exercised on railways regarding the question of color blindness among employes. On the railways there is probably more danger of accidents resulting from this cause, but the fact remains that if it is necessary to ascertain the ability of masters and pilots to determine colors, similar regulations should apply at least to lookouts or watchmen aboard vessels, and it is difficult to understand the opposition of the United States board of supervising inspectors of steam vessels on this subject.

A STATEMENT in last week's issue showing in detail earnings and operating expenses of the steel steamer Manola of the Minnesota Steamship Company's fleet was very much appreciated, and it was unfortunate that a single figure in the dimensions made the boat's length over all 508 feet 5½ inches instead of 308 feet 5½ inches. As the length of keel was given as 292 feet 5½ inches, however, the error of the printer was readily understood by all who are acquainted with the proportion of length of keel to the over all length in lake steamers.

Personal Mention.

James A. Dumont, supervising inspector general of steam vessels of the United States, is making a tour of inspection among district officers of the lakes.

Capt. Chas. Brown, formerly of the steamer Northern King, who has been seriously ill for a year and reported dead at one time, has recovered sufficiently to be out of doors.

Col. Jared Smith, United States engineer located at Cleveland, has suggested some changes in the plans for improvement of Ashtabula harbor. The changes will be considered by the finance committee of the association at its next regular meeting.

At a recent meeting of the Detroit Dry Dock Company and the Dry Dock Engine Works of Detroit the following officers were elected: Hugh McMillan, president; A. McVittie, vice-president; Frank E. Kirby, engineer; Gilbert N. McMillan, secretary.

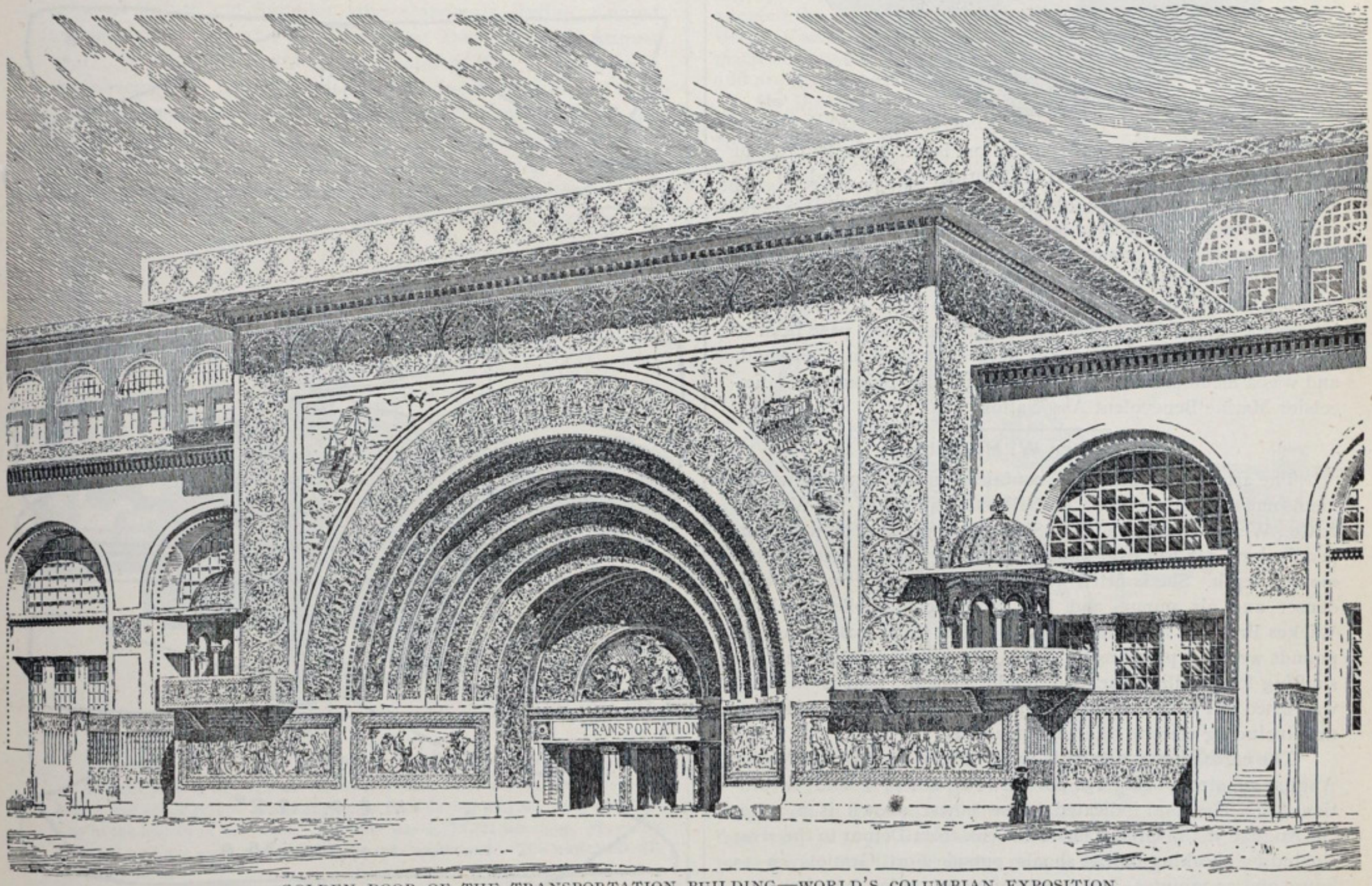
A story going the rounds of the press says that President James J. Hill of the Great Northern Railway and Northern Steamship Company, has his life insured for $1,000,000. He recently gave his check for $136,350 in payment of the premium on the policy for that amount and an annuity of $12,500, which will begin ten years hence.

New Cunard and White Star Steamers.

Glasgow exchanges report work on the new Cunard line steamers well advanced, and it is claimed that in the rapid construction of these big Atlantic liners the Fairfield company will accomplish a feat in ship building probably unequalled in the history of the trade. Comparing these boats with the new White Star steamer, the Glasgow Daily Mail says: "We have surely come very near the limits of size for the steamers that take the traffic of the Atlantic ferry, if the reported dimensions of the White Star steamer that is to be built to lower the record of the coming Cunarders may be accepted as correct. The dimensions are said to be 700 feet long by 70 feet beam; and the horse power is to be 30,000. Comparing this with the measurements of the new Cunard liners, they are understood to be 600 feet between perpendiculars and 65 feet breadth of beam, with a tonnage of 13,000 and a horse power equal to 26,000. The Teutonic and the Majestic, the largest hitherto of the White Star liners, measure 566 feet between perpendiculars and have a breadth of beam of 57.8 feet. The City of Paris and the City of New York measure 527 feet between perpendiculars, and are 63 feet in breadth of beam. The two White Star steamers are, therefore, already the longest afloat and have the least breadth of beam in proportion to their length of any first class Atlantic liner, yet the proposed new White Star liner is to be 134 feet longer than the longest now afloat, while preserving the proportion of one in ten between the length and the breadth. When it is remembered that the Britannia, the first Cunarder, was only 207 feet between perpendiculars in her entire length, the jump of 134 feet all at once in the length of the longest Atlantic steamer is something astonishing."

Bearing an Element of Romance.

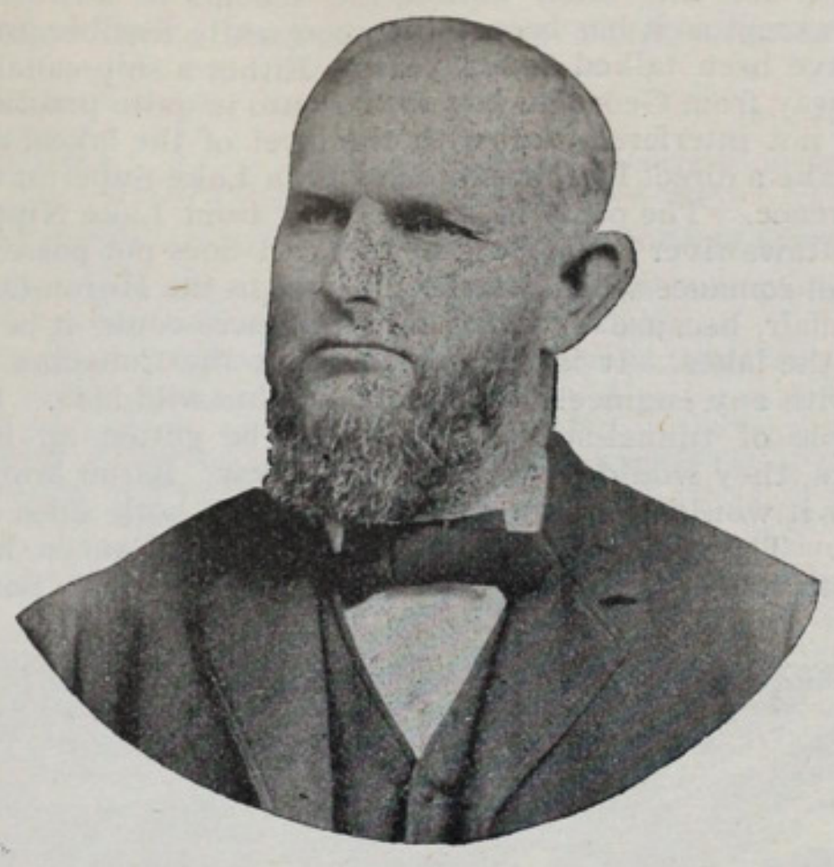
In a department entitled "Civil Engineering," T. Graham Gribble presents a great deal of interesting reading each month in the Engineering Magazine, and much of it pertains to projects on the lakes. "It is amusing," he says, "to see the daily press blossoming into large captions over the great Canadian project of draining the lakes by a Huron-Ontario ship-tunnel. Whatever grounds there may be in the statements of the Canadian press for this crazy notion, the scheme is unworthy of mention except as it has been built upon really feasible projects which have been talked of for years. Either a ship-canal or a ship-railway from Georgian bay to Toronto is quite practicable. It would not interfere at all with the level of the lakes, and it would make a direct line for shipping from Lake Superior to the St. Lawrence. The other idea of a canal from Lake Nippising to the Ottawa river is not so feasible, and does not possess the element of romance which has been given to the Huron-Ontario tunnel affair, because under no circumstances could it be made to drain the lakes. It is difficult to credit the Canadian newspapers with any engineering support for this wild idea. If this is a sample of tunnel-stories which can be gotten up by our neighbors, they would do well to start a new 'Baron Munchausen,' for it would find an excellent sale on both sides of the Atlantic. The sequel to this one should be that Canada, having drained away the American waters, will buy up Uncle Sam and his damaged country at its value before he came there. Let us hope that with these noble projects in full array Canada will begin by improving the Welland canal and the St. Lawrence canals, especially the latter, unless the 25 to 50 millions involved in these little details are too insignificant for her to think about just now."



GOLDEN DOOR OF THE TRANSPORTATION BUILDING—WORLD'S COLUMBIAN EXPOSITION.

The work of testing the formation through which the Prince Edward island tunnel would have to pass is now being carried out by the Electric Mining Company of Ottawa. The test holes are being sunk one-third of a mile apart. The depth of water in the strait varies from 60 feet to 160 feet, and in order to obtain a stationary platform to carry out the work, a tripod of wrought-iron tubes, with solid pointed ends driven in the bottom, is used. Upon this a platform containing the drilling apparatus is erected, and the drilling is carried on through an iron casing extending to the bottom. The diamond drills take out a core of 1½ inches in diameter, the boring being carried down about 110 feet. So far the formation has proved to be sandstone, with intervening layers of plastic clay. The test drilling will be finished by October.

Late Capt. A. W. Reed.



Announcement was made in the last issue of the REVIEW of the death of Capt. A. W. Reed of Sheridan, N. Y., and in the accompanying engraving a good likeness of this much-respected vessel master is presented. He was among the best known and most successful of lake ship masters and was held in the highest regard by associates. Although his home was at Sheridan, N. Y., to which point the remains were taken from Cleveland for interment, Capt. Reed has for several seasons past been in charge of vessels of the Corrigan fleet controlled in Cleveland, and was a member of the local branch of the Shipmasters' Excelsior Marine Benevolent Association.

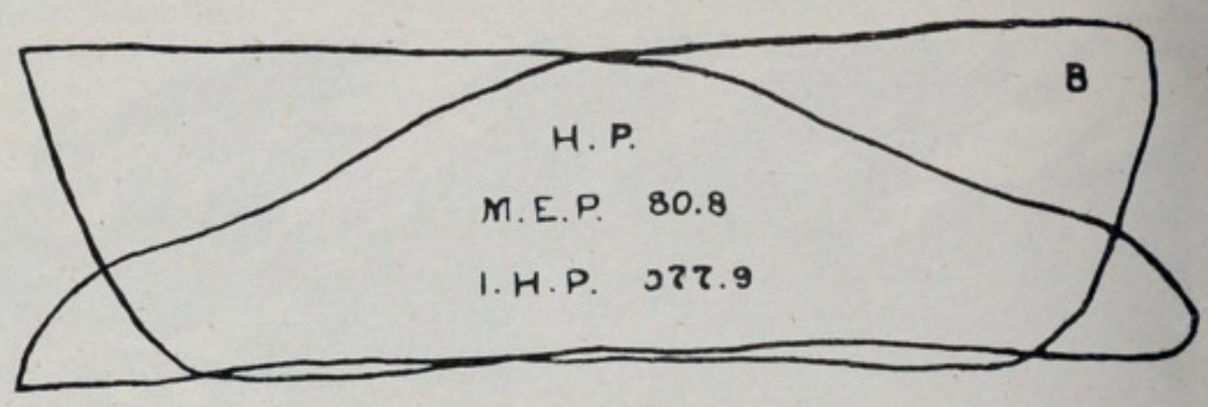
The Steamer W. H. Gilbert.

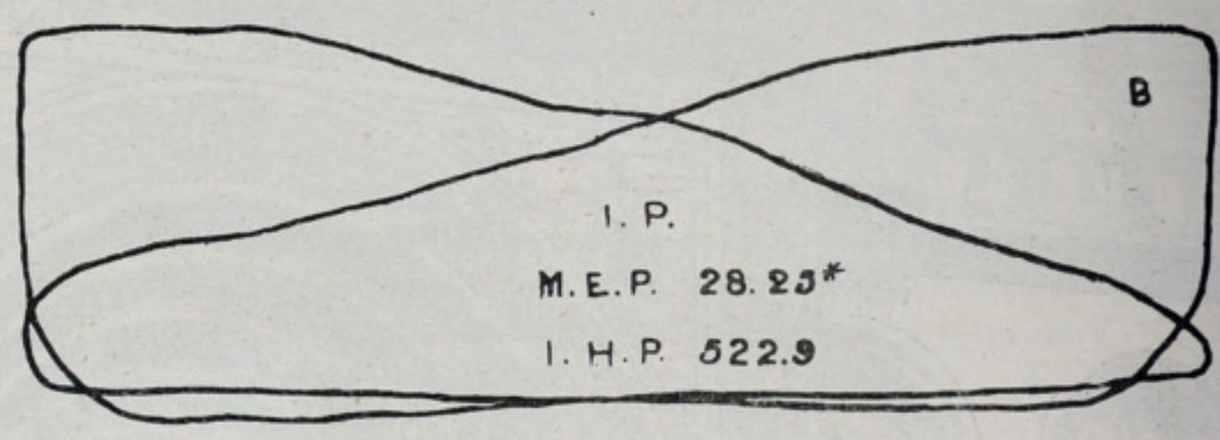
The arto-type illustration contained in this issue shows the handsome steel steamer W. H. Gilbert, built by F. W. Wheeler & Co., West Bay City, Mich. She is 328 feet keel between perpendiculars, 345 feet over all, 42 feet beam and 24 feet 6 inches molded depth. She is fitted with Worthington independent condenser and air pump, and has three Scotch boilers built by Wickes Bros., 12 feet diameter and 12 feet long, carrying 160 pounds working pressure. There are gangway ports and line shafting for handling package freight, and the boat is in every way fitted out with the latest improvements in naval architecture, including electric lighting apparatus.

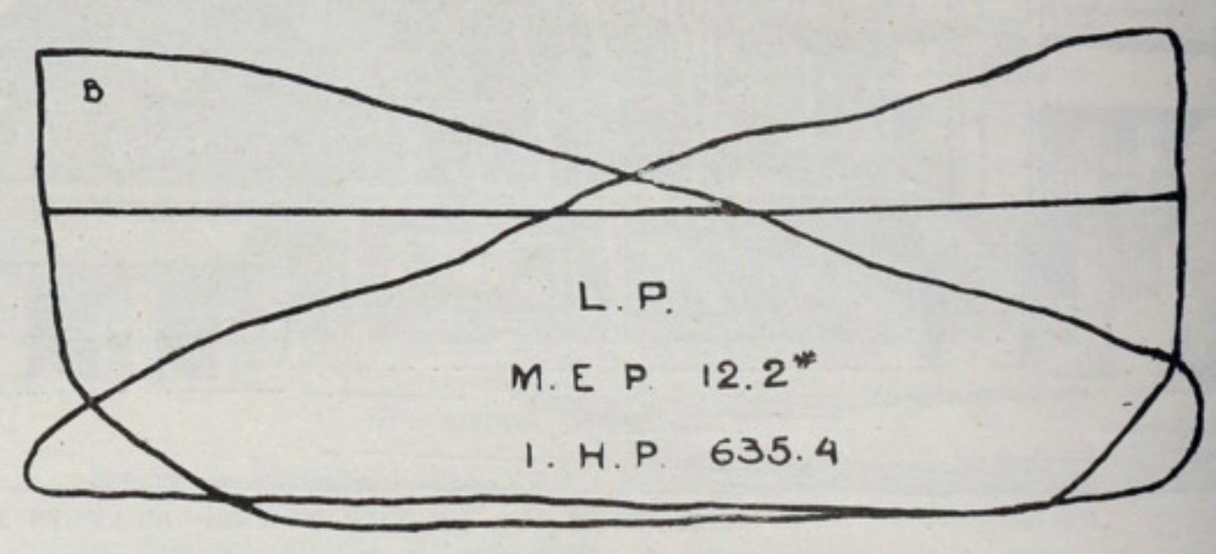
The cards shown herewith were taken on Lake Superior August 29, steam being 158 pounds, vacuum 24½ and revolutions 78. The total indicated horse power shown is 1,736.2. On August 31 the Gilbert made the run from Detour to the river (including checking on the shoals outside Fort Gratiot) in 15 hours and 32 minutes, an average of 14.47 miles per hour on the Sault draft; average engine turning 78 per minute. The slip observed was only 4.3 per cent.

The engines of the Gilbert, built by the Frontier Iron Works of Detroit, are of the three-cylinder triple expansion type, with cylinders 23, 37 and 62 inches in diameter and 44 inches stroke, arranged with the high pressure cylinder in the middle. The high pressure engine is fitted with a piston valve operated by the Joy valve gear as improved by the Frontier works. The intermediate and low pressure engines are fitted with slide valves operated by link gear, the valve of the intermediate engine being double ported and the low pressure treble ported. The valves and ports throughout are calculated for a piston speed of 700 feet per minute. The pistons are made unusually deep, the intermediate and low pressure being 12 inches at the edge, while the high pressure is 14 inches. The crank shaft is in two sections and is 12½ inches in diameter, with journals 20 inches long. The crank pins are 12½x12 inches. The thrust bearing has had special attention and is secured rigidly to the bedplate of the engine with five collars running in a bath of oil. The bedplate is 24 inches deep. The main journals are so constructed that the brasses can be slipped from under the shaft without jacking the shaft up, and the upper and lower brasses are interchangeable. Lubrication is furnished to the main journals from the under side by large compression cups placed on the starboard columns, two for each journal, in addition to the usual cups on top of journal. All pumps are independent. Improvements in matters of detail, which count for so much with engineers, are very numerous, and these engines have been the subject of much favorable comment from engineers, on account of the attention given to accessibility and room. Nothing is crowded and yet everything is compact.

The chief draftsman of the Frontier Iron Works, Mr. H.







Penton, from whose hands these engines come, has a practical understanding of the need of attention to detail, having served for a number of years as chief engineer of some of the best lake steamers. Duplicates of these engines are being erected in Mr. Samuel Mather's whaleback Pathfinder.

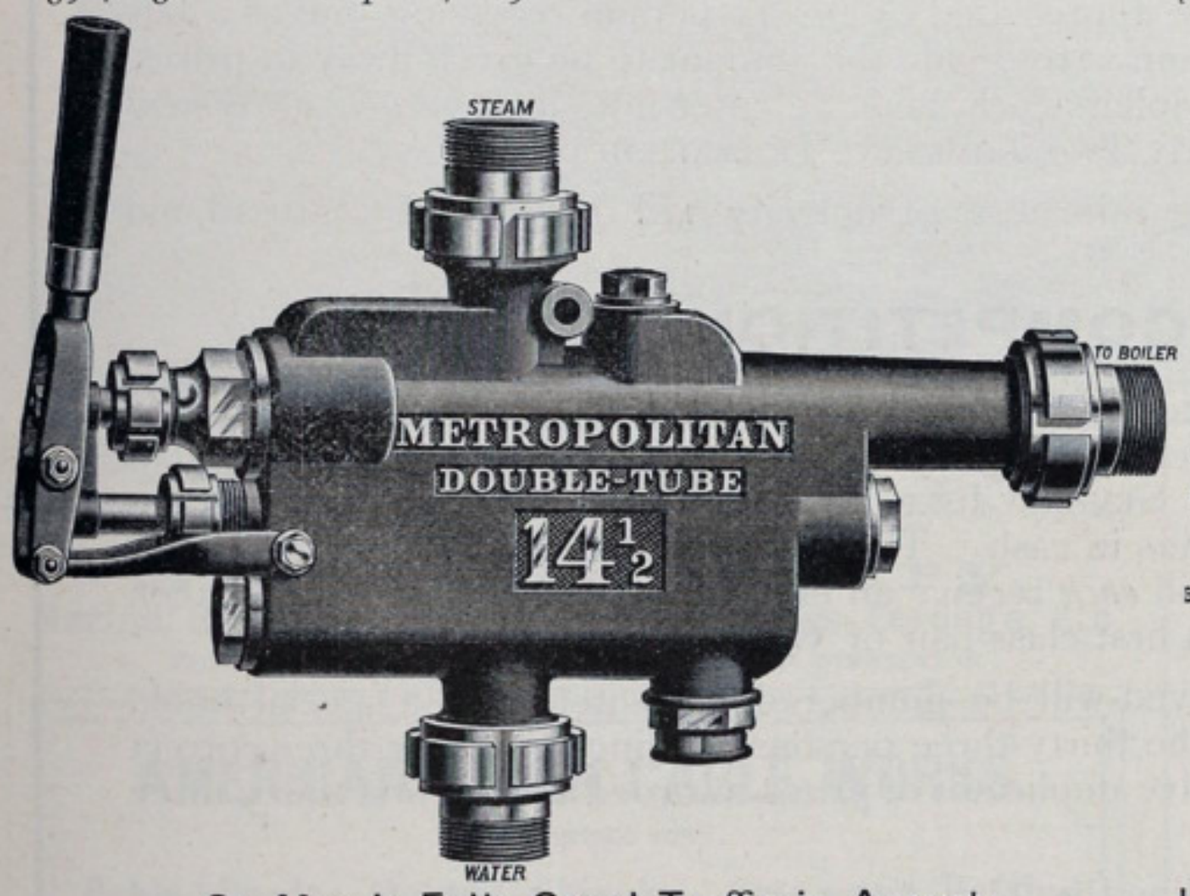
"The American Yacht List for 1892," published by Thomas Manning, 45 Beaver street, New York, is now ready. It is a handsome work of 477 pages, and great care having been used in its preparation, it is a most valuable book of reference, replete with reliable information. The work contains a complete register of the yacht clubs of the United States and British provinces, with list of officers, addresses of secretaries, names of yachts, official numbers, signal letters, dimensions, designers, builders, etc.; summary of yacht club regattas and races, giving courses, starters and results; also rules of measurement and time allowances of each club, alphabetical list of owners and facsimiles in chromo-lithograph of club flags, and private signals of owners; international code of signals and weather signals.

Coal Movement to Lake Superior.

As shown by the following table, coal shipments, hard and soft, to Lake Superior ports from the opening of navigation to Sept. 1, were 300,852 tons in excess of shipments on the corresponding date in 1891:

Months.	1892, net tons.	1891, net tons.
April	151,495	10,919
May	401,729	404,698
June	462,564	390,674
July	542,003	436,254
August	414,448	428,842
Total	1,972,239	1,671,387

The figures are taken from the monthly statements of St. Mary's Falls canal traffic. Notwithstanding the Buffalo strike, which placed shippers of hard coal at a great disadvantage, and the restriction in the soft coal movement, on account of crowded docks at Duluth and Superior, the shipments during August are only a few thousand tons less than they were in August 1891. It is evident also that the greater portion of the gain in the movement to Lake Superior can still be credited to soft coal, as the shipments of hard coal out of Buffalo to all points on the lakes during August were only 247,562 tons, against 412,814 tons in July and 275,585 tons in August of last year. The entire movement of hard coal from Buffalo to all lake ports above Detroit was on Sept. 1 of this year 1,420,347 tons, against 1,392,003 tons on Sept. 1, 1891.



St. Mary's Falls Canal Traffic in August.

Freight passing through the St. Mary's Falls canal during the month of August was again greater in the aggregate than during August of any previous year in the history of the canal. The total was 1,772,731 net tons, of which 1,300,341 tons was eastbound and 472,390 tons westbound. The traffic was divided as follows:

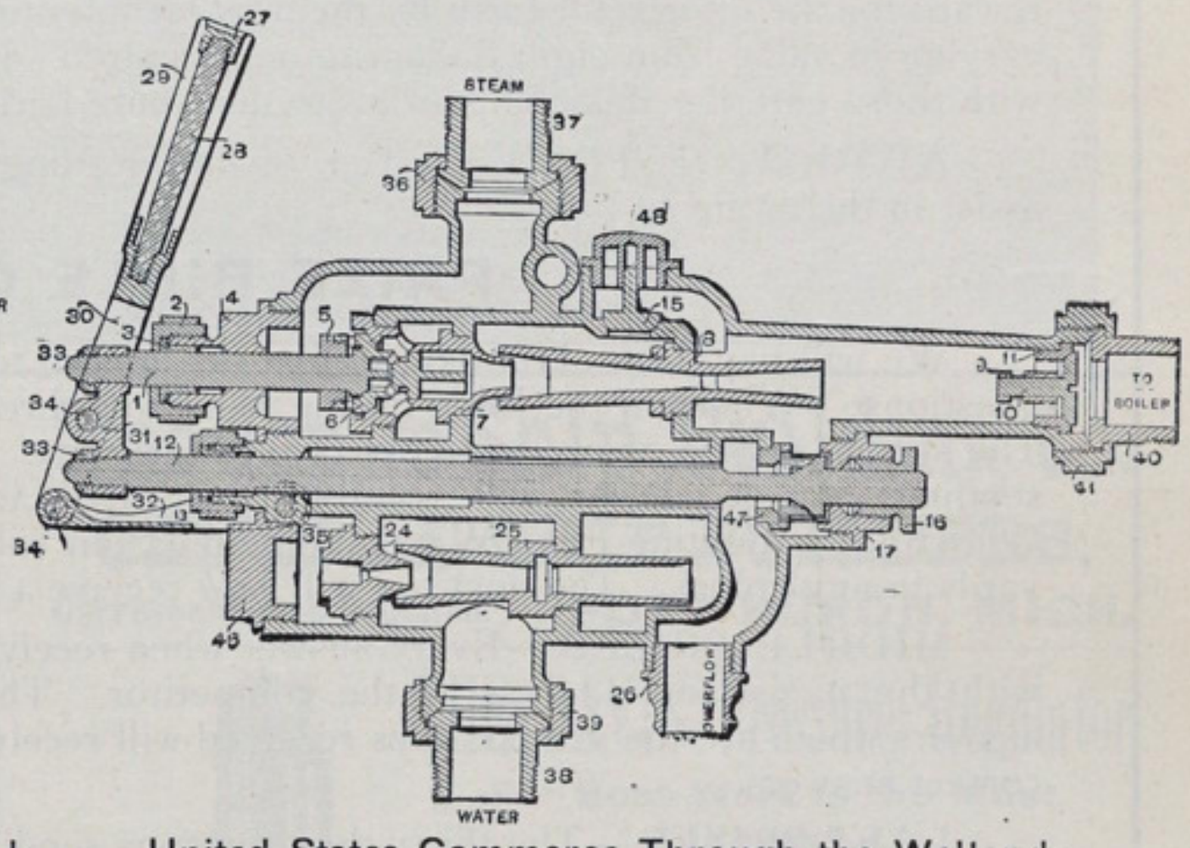
	Eastbound.	Westbound.
Coal	.....	414,448 tons.
Flour	760,860 bbls.	175 bbls.
Grain	.....	12,850 bu.
Corn	343,498 bu.	.....
Wheat	3,121,253 bu.	.....
Building stone	6,535 tons.	.....
Copper	8,062 tons.	.....
Manufactured iron	.....	11,365 tons.
Iron, ore	958,774 tons.	.....
Iron, pig	10,488 tons.	.....
Salt	.....	30,070 bbls.
Lumber	73,607 M feet	.....
Silver ore	300 tons.	.....
Unclassified freight	17,342 tons.	41,507 tons.
Passengers	4,253	4,491

As compared with July the most important differences are a decrease of 127,555 tons of coal, an increase of 26,068 tons of iron ore and a decrease of 1,435,532 bushels of wheat.

A New Injector for Marine Purposes.

The machine, as the name implies, is a double tube one; that is, it is provided with an independent lifting and forcing apparatus. By means of this independent lifting and forcing apparatus an injector has been produced that will work under a great range of steam pressure without any regulation of the water supply. For instance, the machine will start at from 15 to 20 pounds steam pressure with a short lift of say 4 feet, and without regulation of any kind will work at all steam pressures up to 225 pounds. This machine starts readily on a 10-foot lift with 25 pounds, on a 15-foot lift with 30 pounds, and on a 20-foot lift with 35 pounds. On a short lift with a steam pressure of from 30 to 150 pounds the injector will take feed water at a temperature of 145 degrees. The data given will show the great range of this injector. By referring to the sectional cut, while it may appear that the machine is complicated, it will be found upon a close examination that the parts may be easily taken out. The tnbes are all removable from the front end of the machine. The valve seats are all independent of the body casting and can be removed, so that the valves can be ground to their seats, or if the seats become badly damaged they can be replaced by putting the injector in a lathe and turning the casing up. F. W. Wheeler & Co. of West Bay City, Mich. have adopted these machines as their standard. The American Steam Barge Company has also adopted them. A full set of these machines are on the steamer Gilbert, illustrated in this issue, and are giving perfect satisfaction.

On the seaboard they have met with great success. The Newport News Ship-Building and Dry Dock Co. of Newport News, Va., the W. & A. Fletcher Co. and other large ship builders on the coast have adopted them as their standard. It is the only injector that will work successfully on high or low steam, whether on a short lift or a long lift. For prices inquire of the Hayden & Derby Manufacturing Co., 111 Liberty street, New York.



United States Commerce Through the Welland.

The Toronto Globe gives the following as the quantities of freight which have passed through the Welland canal each year from 1867 to 1891, inclusive; also the numbers of tons that passed from one United States port to another:

Year.	Total tons.	U. S. tons.	Years.	Total tons.	U. S. tons.
1867	933,260	458,386	1880	896,122	248,944
1868	1,101,821	641,711	1181	798,809	196,285
1869	1,231,903	688,700	1882	644,727	191,817
1870	1,311,966	747,756	1883	861,634	337,619
1871	1,478,122	772,667	1884	965,830	417,972
1872	1,319,996	638,039	1885	839,551	416,826
1873	1,391,692	634,913	1886	934,862	443,961
1874	1,540,081	703,185	1887	838,687	387,109
1875	1,142,853	595,217	1888	827,300	387,555
1876	1,121,802	524,197	1889	938,254	464,415
1877	1,126,429	482,878	1890	1,104,353	550,844
1878	1,091,898	448,413	1891	959,502	563,856
1879	918,924	361,304			

The largest quantity of freight passed through the Welland canal during the fiscal year of 1874, when the amount was 1,540,081 tons. Canal schooners or vessels suited to dimensions of the canal locks, were engaged very extensively in the grain trade during the seventies.

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AWARD OF PRIZES.—Ten of the leading ministers of our city will be invited to attend and assist in the award of prizes.

PRIZE BIBLE COMPETITION.

We will pay One Hundred Dollars in cash to the first person who correctly answers the following questions: Where in the Bible do the following three words first appear: 1, Rain; 2, Bread; 3, Milk. The second person answering correcly will receive Seventy-Five Dollars in cash. The third person sending correct answer will receive Fifty Dollars in cash. The next ten will *each* receive an elegant Coin Silver (hunting case) Watch. The next ten will *each* receive an elegant Silk Dress pattern (sixteen yards in any color). The next ten will *each* receive a first-class pair of Opera Glasses.

MIDDLE PRIZES.—Every answer when received will be numbered and entered on a special book, with the name and address of the competitor. The thirty-three persons sending the thirty-three correct answers which are the middle ones received will receive duplicates of prizes awarded for the first thirty-three correct answers.

LAST PRIZES.—The thirty-three persons sending the thirty-three correct answers which are received *last* will receive duplicates of the prizes that are awarded for the first and middle thirty-three correct answers, the last correct answer receiving the One Hundred Dollars, the next to the last the Seventy-five Dollars, and so on until the thirty-three prizes for the last thirty-three correct answers have been awarded.

SPECIAL PRIZES.—A prize consisting of an elegant Lady's or Gentleman's Watch will be given to the person sending the first correct answer which is the first received from their State or Province.

CONDITIONS.

Answers must be accompanied with fifteen United States two-cent postage stamps for one package of Pearlifoam, which is the latest scientific discovery for cleansing and preserving the teeth. Our object is to introduce and attract attention to Pearlifoam, which is the only preparation whose manufacturers are willing to offer a reward of Five Hundred Dollars to any dentist who can show that it contains anything injurious to the teeth. A mouthful of pearly white teeth is the sure result of its constant use. It is recommended by the leaders of the dental profession everywhere; ask your dentist what he thinks of it. Pearlifoam is sent by mail, post paid, and free of customs duty.

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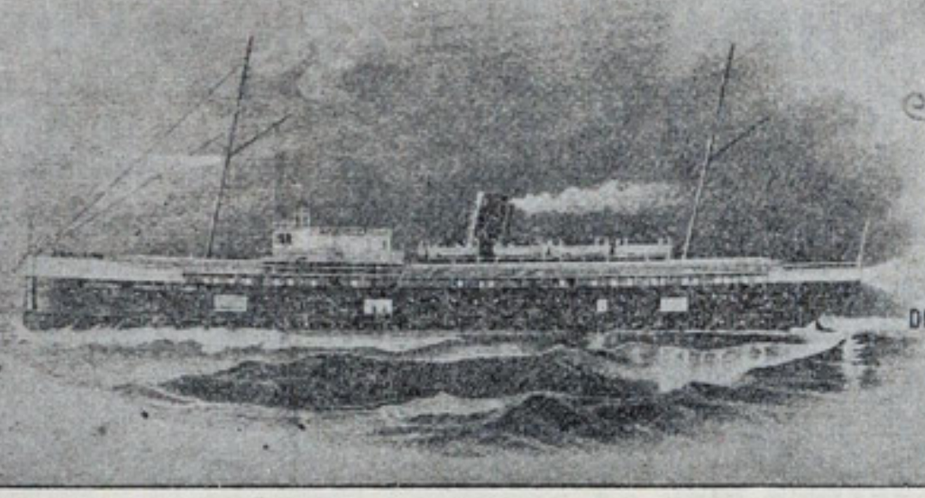

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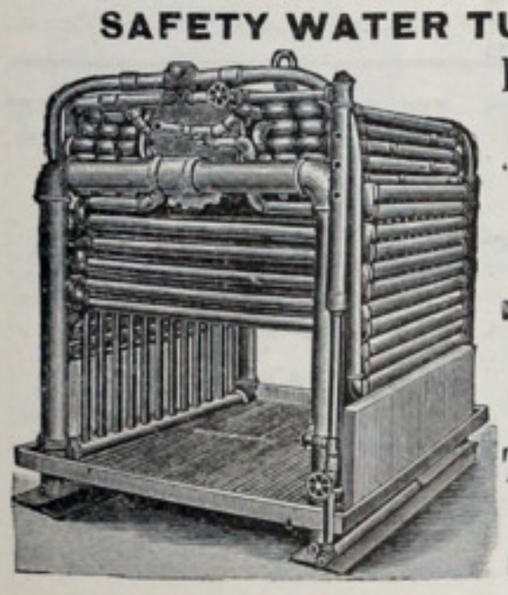

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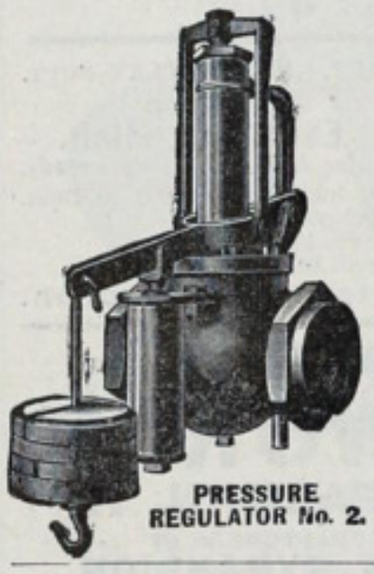

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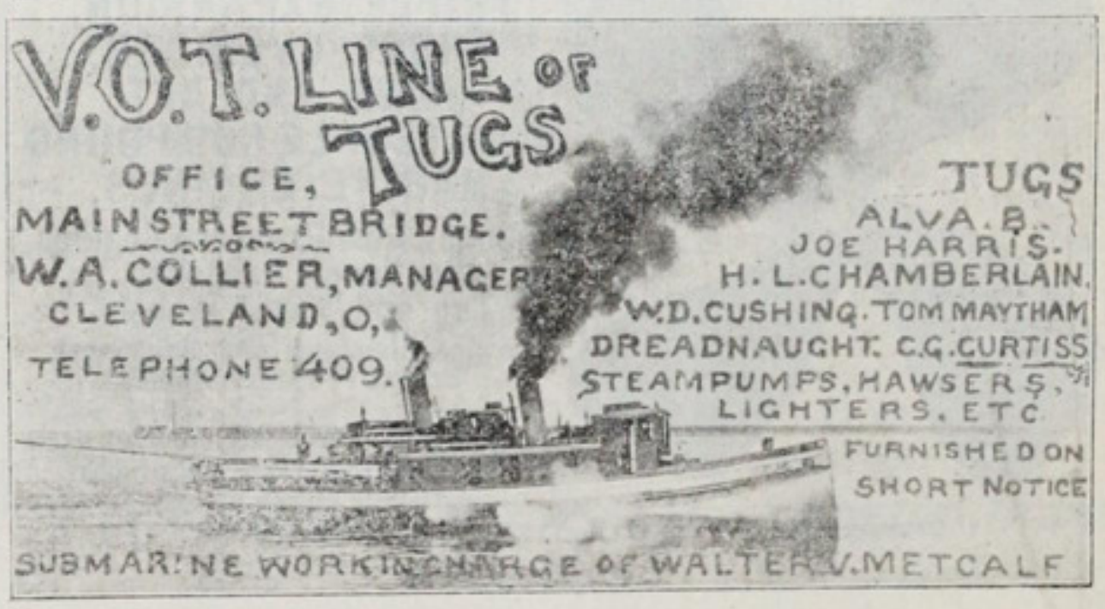

MARINE REVIEW LINER EXCHANGE.

Space under this heading may be used gratis by our advertisers or subscribers to call attention to vessels or any craft, machinery, new or second hand, that they may have for sale. Those wanting machinery of any kind or wishing to purchase vessels, are invited to take advantage of the same offer. Employers in need of professional men or men who want positions may avail themselves of the opportunities offered. Each item will be limited to three lines. Letters concerning same must mention number attached to item and be addressed MARINE REVIEW, 516 Perry-Payne Building, Cleveland, O.

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148—WANTED—Master's position on good steambarge. References given on application.

149—WANTED—Pair swinging engines, second hand, not smaller than 6x6 cylinders; for dredge.

150—WANTED—A responsible man to take an interest in a new marine invention; nothing like it in the market. Address Marine Lock Box 487, Toledo, O.

U. S. ENGINEER OFFICE, 34 WEST CONGRESS St., Detroit Mich., August 17, 1892. Sealed proposals for: 1, dredging Black River, at Port Huron, Michigan; 2, dredging mouth of Black River, Port Huron, Michigan, will be received at this office until 2 p. m. September 16, 1892, and then publicly opened. Specifications, blank forms and all available information will be furnished on application to this office. O. M. POE, Colonel, Corps of Engineers, etc. Sept. 8.

U. S. ENGINEER OFFICE, DETROIT, MICH., August 16, 1892. Sealed proposals for: 1, dredging bar at mouth of Saginaw River, Mich.; 2, dredging Essexville bar near mouth of Saginaw River; 3, dredging west channel along West Bay City, Mich.; 4, dredging channel of Saginaw River above Bay City, Mich., will be received at this office until 2 p. m., September 15, 1892, and then publicly opened. Specifications, blank forms, and all available information will be furnished on application to this office. O. M. POE, Colonel Corps of Engineers, etc. Sept. 8.

U. S. ENGINEER OFFICE, 366 MILWAUKEE ST., Milwaukee Wis., August 12, 1892. Proposals, Harbor Improvements, Lake Michigan. Sealed proposals for: Green Bay Harbor, Wis., Dredging 120,000 cubic yards, more or less. Sheboygan Harbor, Wis., Pier Extension 200 feet, with Superstructure. Port Washington, Harbor, Wis., Pier Extension 200 feet, with Superstructure. Harbor of Refuge Milwaukee, Wis., Extending Breakwater 500 feet, and 300 feet of superstructure. Milwaukee Harbor, Wis., Cutting down and rebuilding 200 feet of Superstructure; repairing 250 feet of piers, and taking out and replacing with new 264 protection piles. Racine Harbor, Wis., Pier Extension 250 feet, and repairs. Kenosha Harbor, Wis., Pier Extension 150 feet. Waukegan Harbor, Ill., Pile Pier, 376 feet Will be received at this office until 12 o'clock, noon, Monday, September 12, 1892, and then publicly opened. Specifications, blank forms, and all available information will be furnished on application to this office. JAMES. F. GREGORY, Major of Engineers, U. S. A. Sept. 8.

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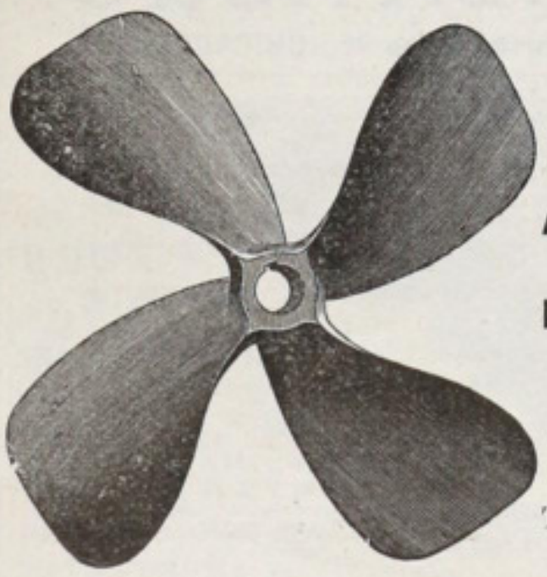

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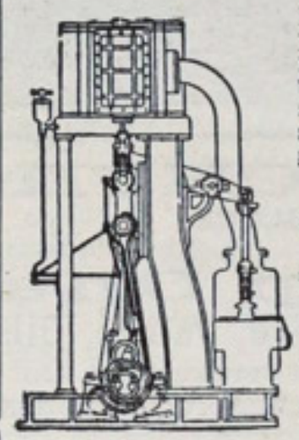

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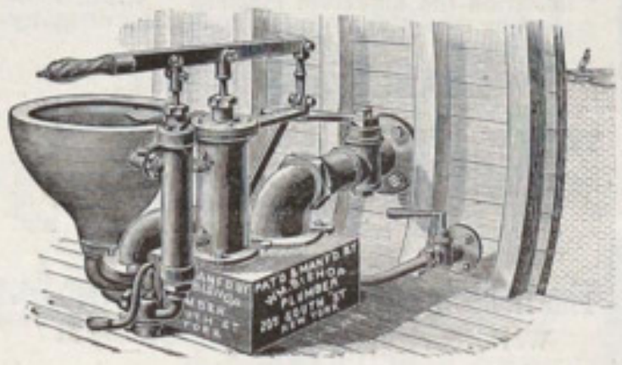

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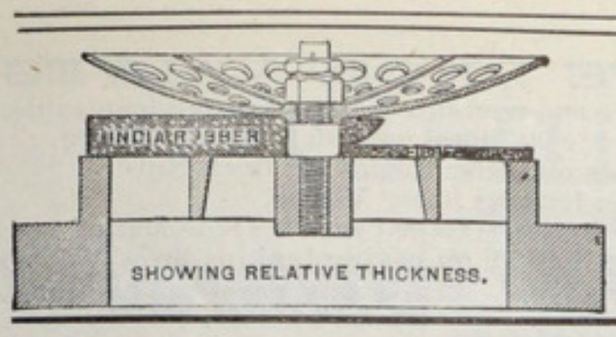

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TREASURY DEPARTMENT, WASHINGton, D.C., Sept. 3, 1892. Sealed proposals for constructing a steam propeller, to be named William Windom, for the United States revenue cutter service, will be received at this department until 2 o'clock p. m., Wednesday, Oct. 5, 1892. Bids must be in accordance with the instructions on page 5 of the specifications, and be addressed to the secretary of the treasury, and indorsed on the envelope "Proposals for construction of steam propeller for United States Revenue Cutter Service." Specifications for the work will be furnished to parties desiring to submit bids upon application to this department. The right is reserved to reject any or all bids, and to waive defects, if deemed for the interest of the government to do so. CHARLES FOSTER, Secretary. Sept. 21.

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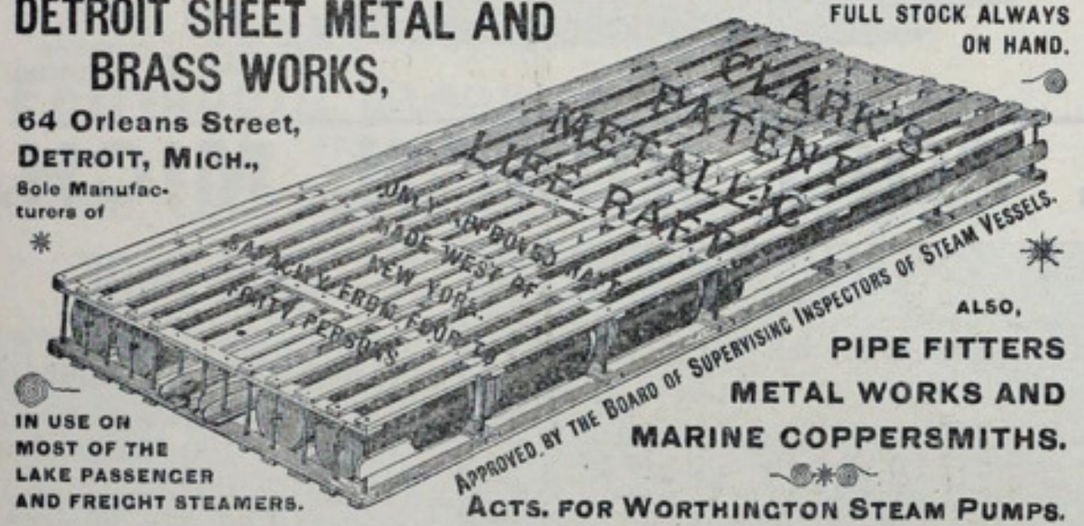

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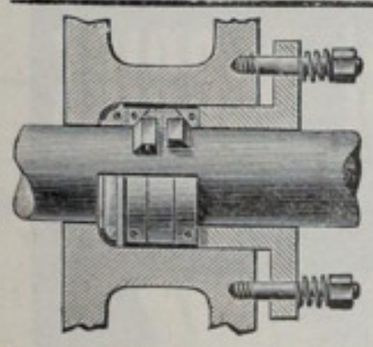

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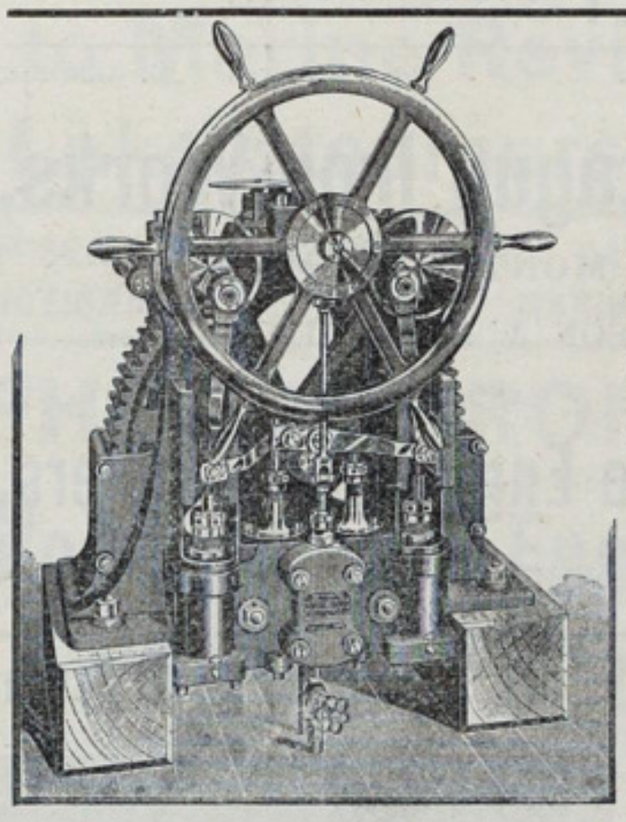

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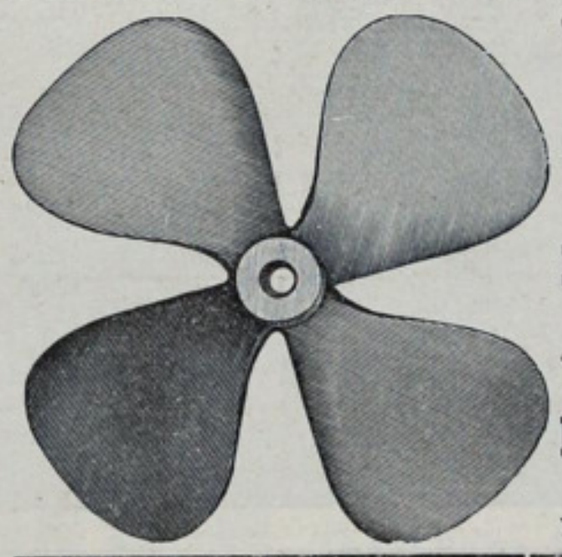

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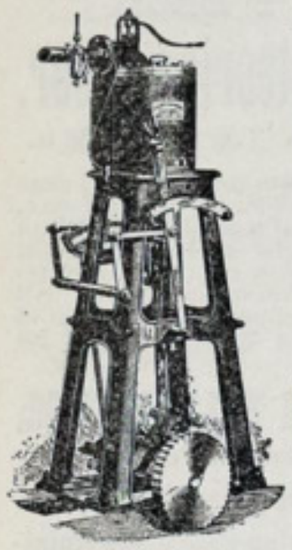

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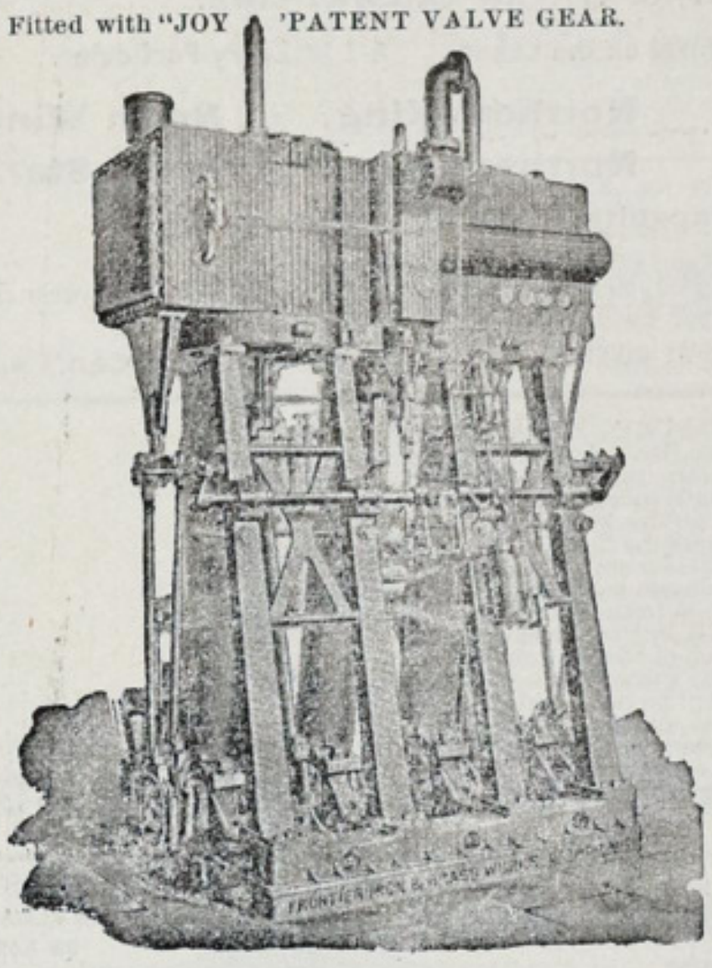

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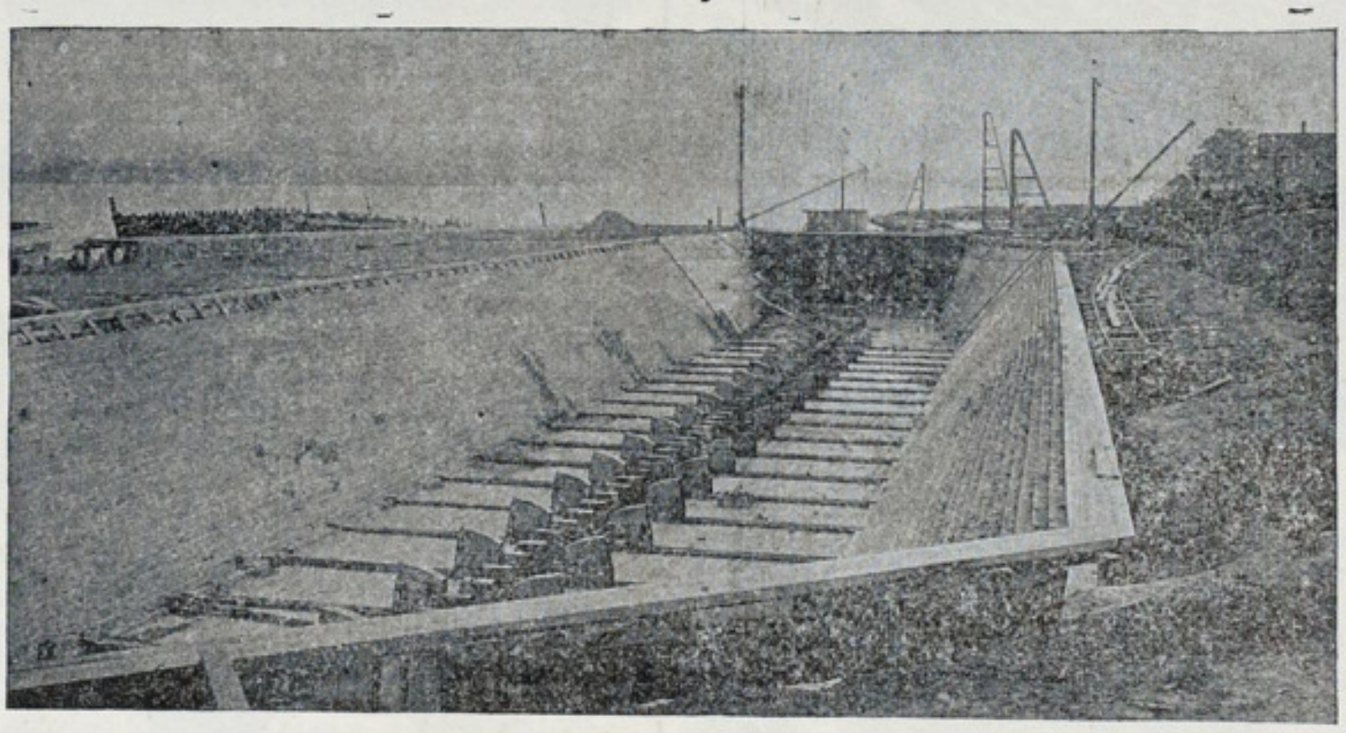

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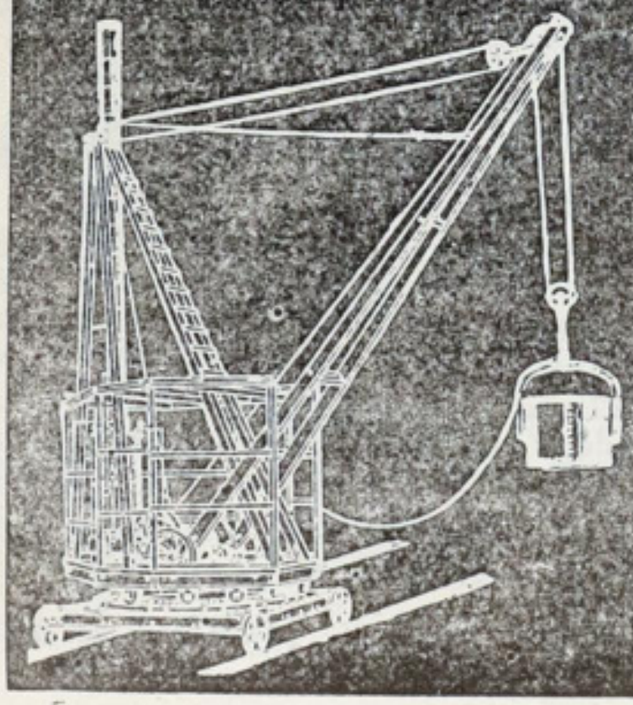

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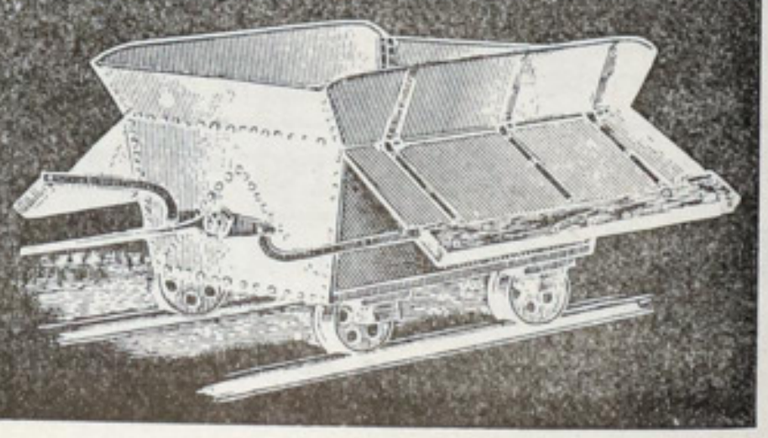

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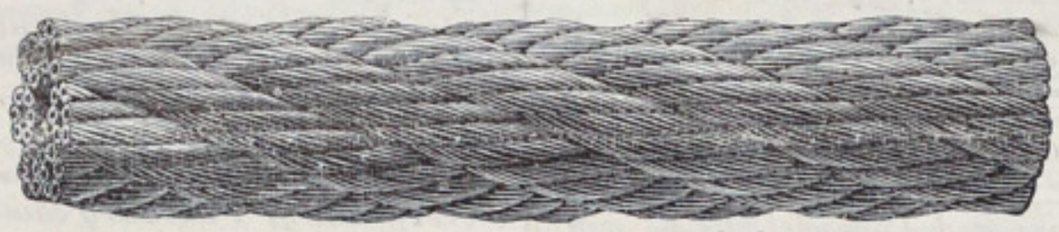

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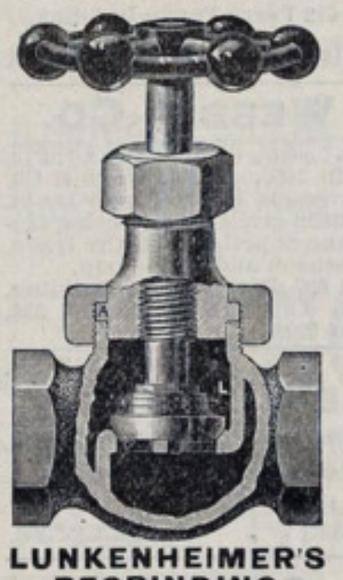

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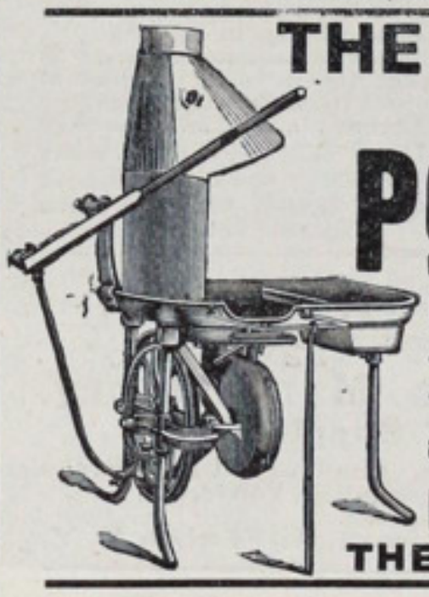

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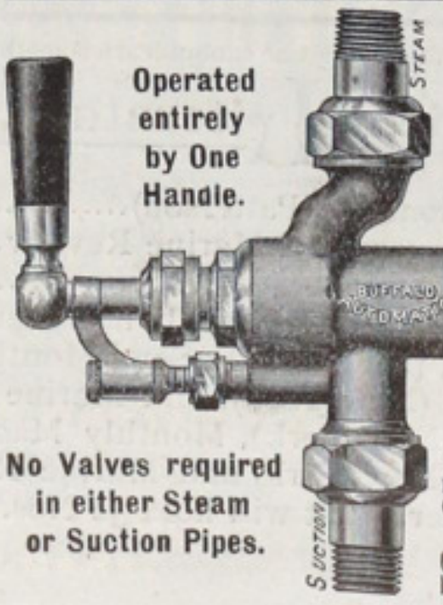

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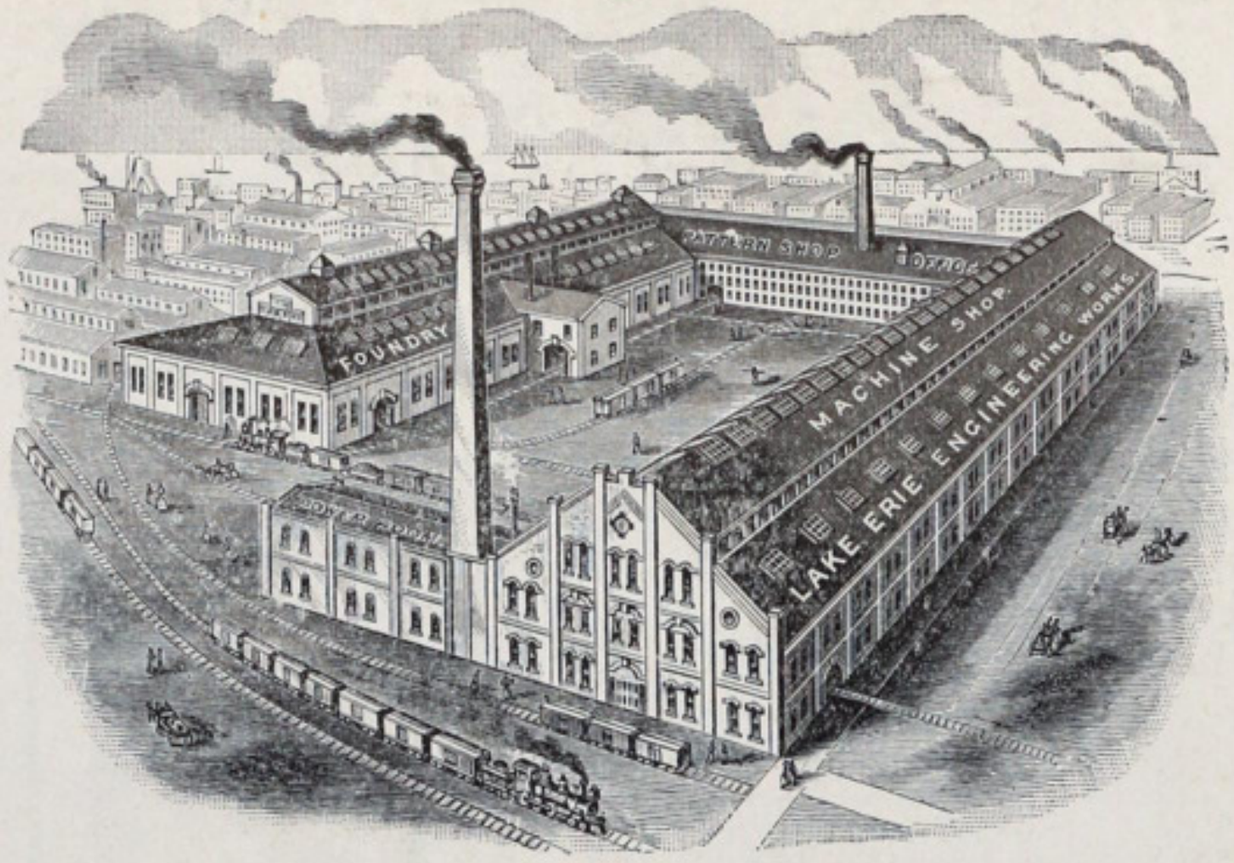

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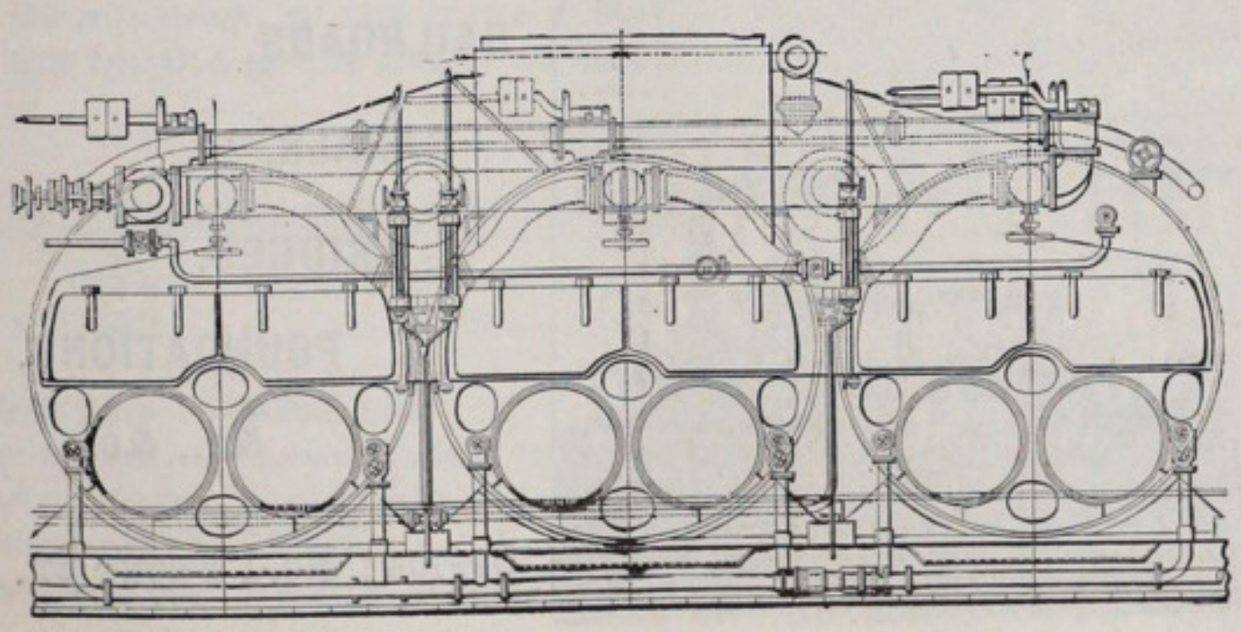

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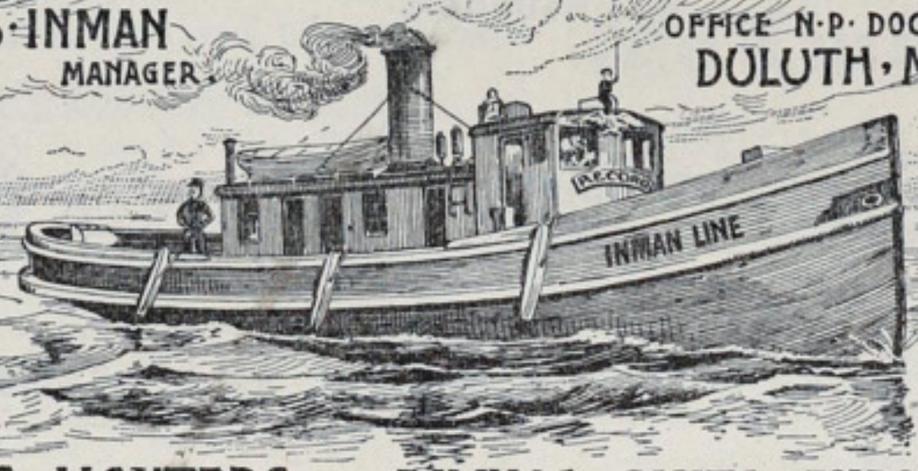

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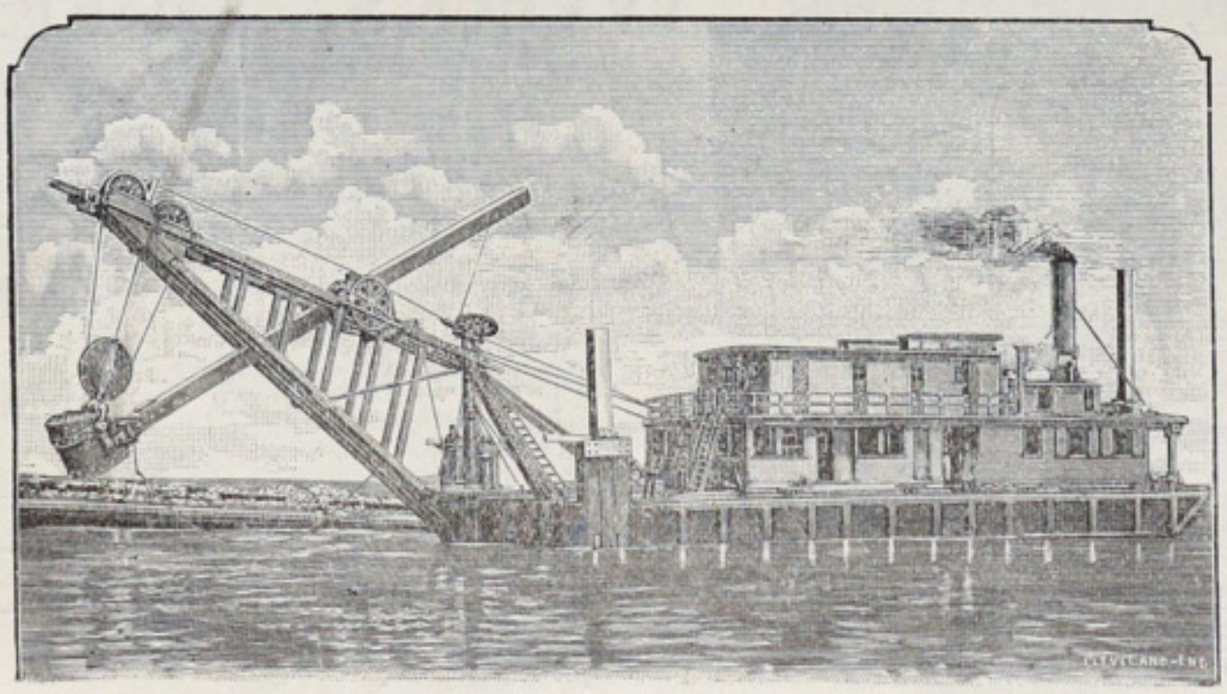

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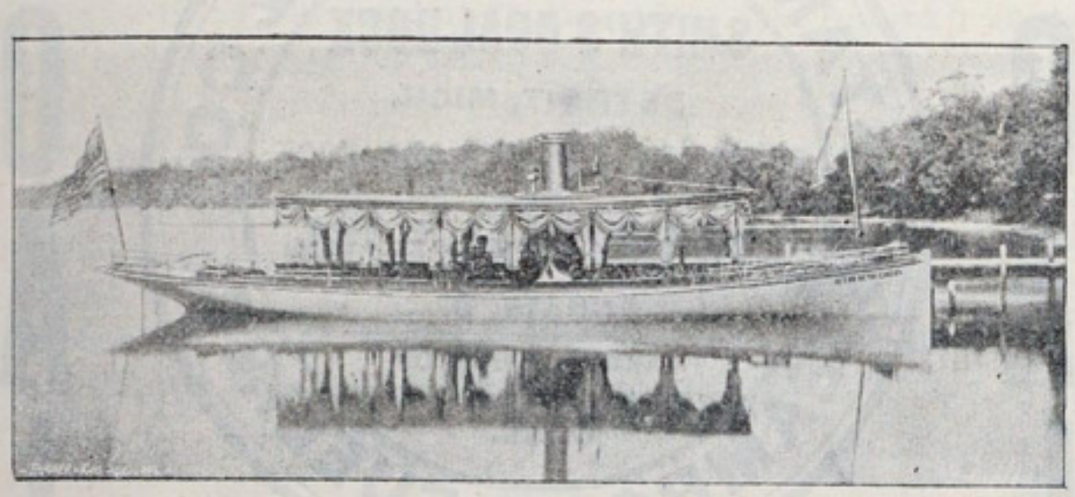

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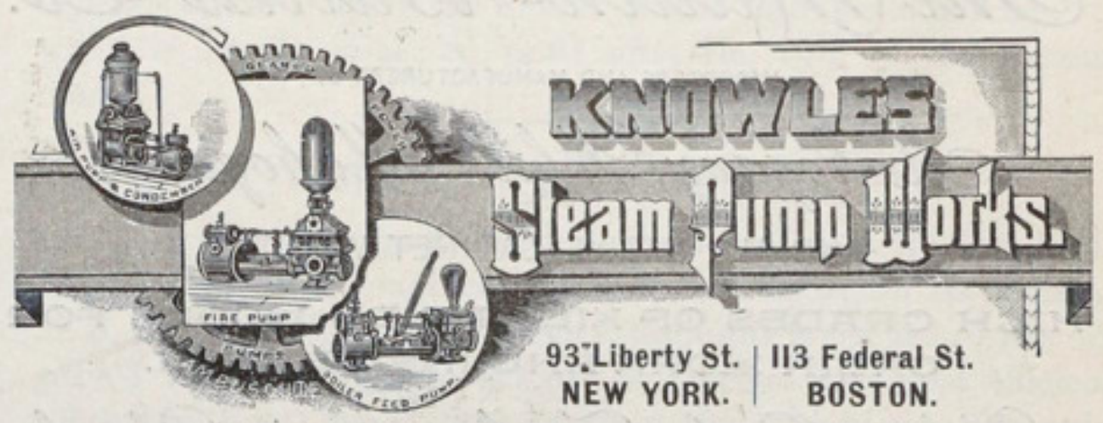

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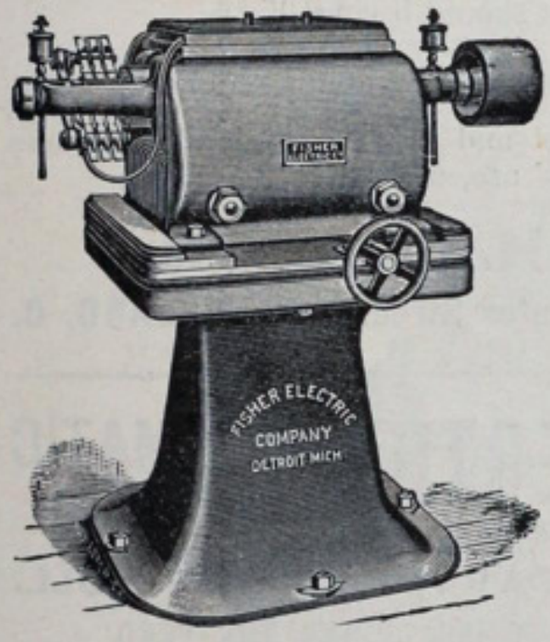

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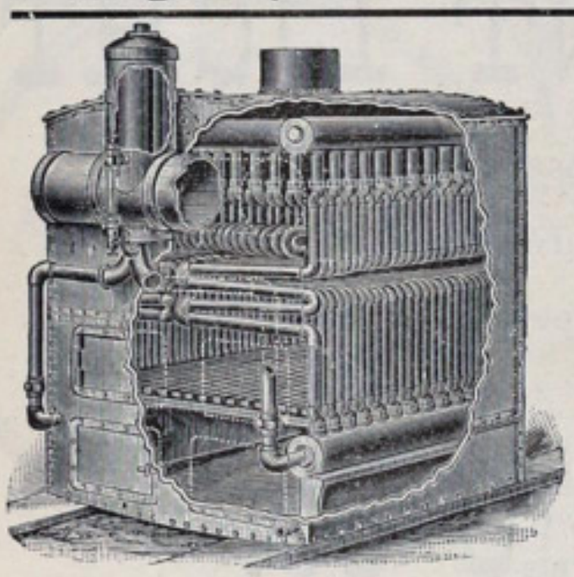

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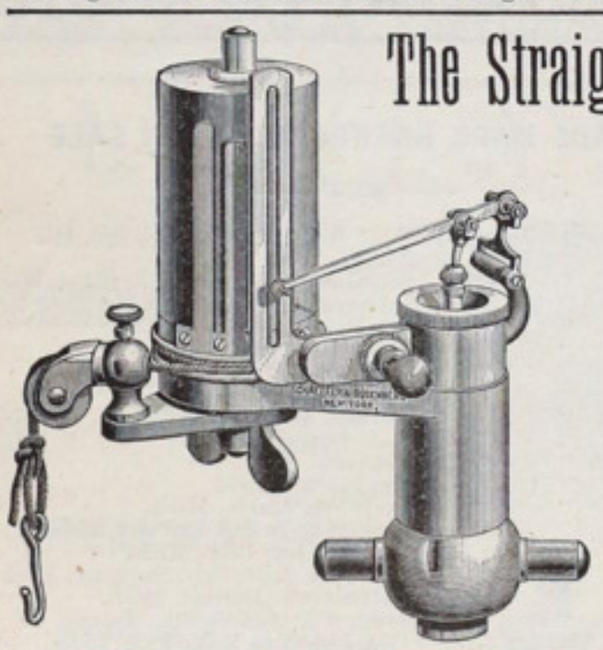

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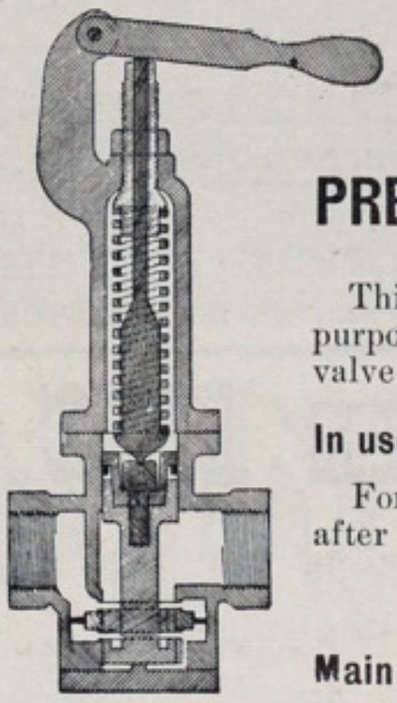

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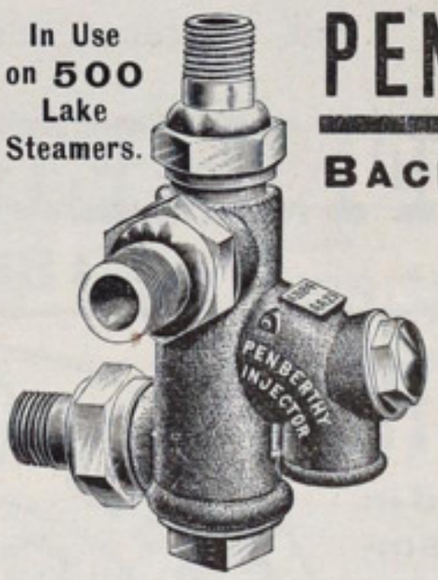

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